

JUNE 1960

VOL. XXX, NO. 3

Review of Educational Research

CURRICULUM PLANNING
AND DEVELOPMENT



AMERICAN
EDUCATIONAL RESEARCH ASSOCIATION

REVIEW OF EDUCATIONAL RESEARCH

The purpose of the REVIEW is to report the major research findings during a designated period, organized by areas of interest. The REVIEW identifies the significant studies, summarizes them, and, within limitations of space, critically analyzes them. It seeks to present syntheses of research findings which reflect educational insight and stimulate new research.

The more active fields of educational research are reviewed every three years; the less active fields are included in alternate cycles. (See inside back cover.)

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REVIEW OF EDUCATIONAL RESEARCH

*Official Publication of the American Educational Research Association.
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Volume XXX, No. 3

June 1960

Curriculum Planning and Development

Reviews the literature for the three-year period since the issuance of
Vol. XXVII, No. 3, June 1957.

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This issue of the REVIEW was prepared by the Committee on
Curriculum: Organization, Planning, and Teaching

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INTRODUCTION

THIS issue of the REVIEW reports research and selected speculative, theoretical, and analytical papers pertaining to curriculum which have appeared since the June 1957 issue (Volume XXVII, No. 3) entitled "Curriculum Planning and Development." A few references are to prior publications, for comparative purposes and because some studies cited here depend on previous research or theoretical formulations.

Major problems encountered were similar to those which have confronted previous Committees. It is difficult to separate curriculum practice and curriculum as a field of study from education as a whole. It is both difficult to isolate curriculum studies and misleading to define the field by reporting research when curriculum as yet is so little guided by research. The Committee made an earnest effort, therefore, to organize its efforts around a framework that might be useful for both viewing the field and conducting research in the future.

What constitutes curriculum and how the definition determined organization of this issue is discussed in the first section of Chapter I. The design of the issue will thus be best understood by reading it consecutively.

JOHN I. GOODLAD, *Chairman*
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CHAPTER I

Curriculum: The State of the Field

JOHN I. GOODLAD *

Scope of the Curriculum Field

REVUE OF research on curriculum planning and development first necessitates agreement on what concepts, data, and processes are involved in an inquiry in the field of curriculum. The reader will not, however, discover a single explicit definition of curriculum in this issue of the REVIEW. Prevailing definitions approximate those summarized in the June 1957 issue (3): (a) The curriculum is a design or plan of institutionalized education. (b) The curriculum consists of the actual learning opportunities provided at a given time and place. (c) The curriculum is an instrument for bringing about psychological changes in learners as a result of their activities in an educational institution. Though the second definition is more commonly stated as "... all the educational experiences that a learner has under the guidance of the school" (24), the term "learning opportunities" is substituted here for the term "educational experiences"; since an "experience" usually is defined as the result of an interactive process, such substitution is necessary if the distinction between definitions (b) and (c) is to be a real one.

Distinctions among these and other definitions of curriculum appear not to affect significantly the kinds of questions and problems dealt with in common by those who work in the field of curriculum. As Kearney and Cook (24) point out, even those who define curriculum as "something that happens to learners" devote their attention to problems involved in developing a curriculum plan or design.

The following statements have been agreed upon by the Committee responsible for preparing this issue of the REVIEW OF EDUCATIONAL RESEARCH and have been used in reviewing the literature and summarizing findings:

1. Curriculum planning takes place in a social context and involves translating views of the nature of man and the universe into educational aims. Actual conditions—war and peace, work and leisure, wealth and poverty, education and "miseducation"—influence curriculum decision-making. Knowledge about learning and the educative process must be taken into account. Governmental, professional, and lay forces mold educational policy. The social context includes highly complex political structures through which pertinent data may, or may not, be applied in arriving at curriculum decisions (Chapter II).

* With the assistance of Margaret P. Ammons, the University of Chicago.

2. The field poses unique questions to be answered for all types of education. Ends must be determined, and means to these ends must be considered; methods of organization and evaluation must be developed. Answers to these questions—and the lack of answers—determine the character of a curriculum (Chapter III).

3. Teachers' decisions reflect their interpretations of all curriculum decisions made up to the point at which teachers and learners engage in the learning-teaching process. Their decisions involve dealing constructively with realities within the classroom and with a variety of factors and forces from outside the classroom, and these decisions are heavily weighted by their own values. Learners react to various stimuli according to their perceptions of these stimuli (Chapter IV).

4. Curriculum development is implemented through administrative, supervisory, and organizational arrangements. Responsibility is delegated to professional people to create a setting for curriculum development and improvement. The function of these people is to provide leadership, to see to it that certain facilities and materials are available, and to create a framework within which instruction proceeds (Chapter V).

This first chapter deals with many of the same questions, but in different ways. It emphasizes curriculum as a field of inquiry and attempts a classification of problems and questions according to nearness to, or remoteness from, acts involved in the learning-teaching process. At the societal level are various analyses, pronouncements, and reports, conceived broadly, or concerned with some type of education—general, vocational, and professional; elementary, secondary, higher, or adult. At the institutional and instructional levels are proposals and programs pertaining to specific, identifiable institutions or groups of learners, and to the actual performance of teachers.

This chapter draws primarily upon analytical and theoretical formulations, using selected research studies only to illustrate kinds of studies and data that can be pertinent. (What one chooses to call data depends upon the theory one constructs to explain phenomena.) Questions are raised in each section which may prove useful in the guidance of future research—questions about who should make what decisions, about appropriate sources of data for decision-making, and about how curriculum decisions are made.

The Societal Level and Curriculum Decision-Making

In all periods in history there have been practical and theoretical proposals for educational reform. It is virtually impossible either to identify the impact of long-standing philosophical formulations during any brief period, or to single out and predict the impact of fresh statements appearing during such a period. For example, how much and in what ways did John

Dewey influence curriculum during the period under review? The John Dewey centennial was celebrated in 1959 with a rash of publications concerning the philosopher and his work (for example, 5, 9, 38). Are curriculums anywhere being redesigned to correct what Snow (44) referred to as a long-standing and widening schism between two intellectual cultures, the literary-artistic and the scientific? He argued that, in today's world, standards of scientific literacy must be placed in importance side by side with standards of the traditional "literary" culture.

The last three years concluded a decade of unusual interest in, and debate over, education in the United States. Evaluations of U. S. education in the literature between 1956 and 1958 became more negative toward the end of this period (29), apparently as a result of the launching of the first Soviet satellite. Whyte (49) asserted that the school must become what Riesman (36) terms "counter-cyclical," throwing its weight against powerful socializing forces that shape "the organization man." With Commager (7), he maintained that the socialization of individuals is now being effected by other institutions and forces, and that the schools must place more emphasis on contributing significantly to the individual's intellectual development. Rickover (34) tilted at world affairs, economic resources, national crises, comparative education, philosophy, psychology, community organization, teacher qualifications and certification, and curriculum and instruction in formulating a bill of particulars for U. S. schools. Conant (8) endorsed the comprehensive high school that Rickover condemned.

It requires some stretching of both language and imagination to classify such material as curriculum research. The several authors do not hold positions in federal or state political structures concerned with, or directly controlling, public education, nor are they in positions involving responsibility for planning specific curriculums. Nonetheless, there is often a parallel between influential lay opinion of what curriculum ought to be and what happens within educational institutions. For example, within months after release of Conant's report, high schools in various parts of the country announced new graduation requirements closely coinciding with his recommendations. Rickover considered Dewey's influence so far from dead that he found it necessary to condemn him repeatedly; Derthick, justifying his 1961 budget request before the House Committee on Appropriations (32), was called upon to defend the U. S. educational system against the charges earlier delivered by Rickover before the same Committee. Rickover's appearance on NBC's "Meet the Press" brought the largest audience response in the 14-year history of the program, almost unanimously praising Rickover (32). It would be interesting to know what curriculum changes, if any, have taken place in the schools of Park Forest, Illinois, which Whyte singled out as providing an example of what schools ought not do; and how much Stoddard (45) was influenced—even indirectly—by Snow's lecture in formulating part of the theory underlying certain curricular and organizational innovations in selected elementary

schools involved in a project with New York University where Stoddard is dean; the resemblance in their theoretical base is striking.

Certainly, people with direct responsibility for education mold curriculums according to some conception of what education ought to be. In many countries—and particularly in the developing countries of Africa, Asia, and South America—political and educational leaders view education as essential to the advancement of whole peoples. In an awe-inspiring revolution of the human spirit, illiterate parents see schooling as essential to the future welfare of their offspring; educational effort is focused upon the establishment of primary schools and upon keeping pupils in them long enough to become functionally literate (48). In the United States, with total literacy close to an established fact, but with national and individual survival thought to be heavily dependent upon science and technology, there is increasing emphasis upon science and mathematics (48).

The fact that curriculum decisions should, and inevitably do, reflect some human conception of what ought to be—frequently somebody's perception of someone else's conception of what ought to be—raises profound questions for curriculum theorists and researchers, answers to which have far-reaching implications for all citizens. Each question must be examined with a view to determining methods and sources of data appropriate to its solution. The question, for example, of who should determine the purposes and content of the educational program in the United States involves moral and legal issues, as Smith, Stanley, and Shores (43) so well point out. Questions of how to determine the best educational ends, of what they are, and of how to implement them, quickly acquire philosophical, political, strategic, and psychological considerations. Woodring (51) looked to the great philosopher (not necessarily the professional) to enunciate core values of the American people so clearly that the tasks of the school would become clear. He had little to say about procedures through which such values might be translated into educational programs. Lieberman (25), on the contrary, brushed aside philosophical issues and focused on the political machinery through which a powerful teaching profession might exert effective pressure in educational decision-making, presumably to achieve improved educational practices.

It is astonishing that curriculum research has dealt so sparingly with the questions of what is expected of educational institutions and how curriculum decisions are made. It is said over and over that the schools belong to "the people" and that "the people" determine the objectives of their schools. What do "the people" want? Downey (11), Seager (39), and Slagle (41) built a conceptual model of mutually exclusive unit-functions to define the tasks of elementary and secondary education. From this model, they derived an instrument for assaying the perceptions of educational objectives held by various sub-publics. They sampled 1286 past and present educators and 2544 noneducators in 15 communities—a residential suburb, an industrial center, and a rural center in each of five regions, the West, the Midwest, the East, the South, and Canada. Downey's

study identified the three R's—"the skills for acquiring and communicating knowledge"—and cultivation of a "love for knowledge" to be the first and second priorities for both elementary and secondary education among all these sub-publics in all regions. Seager and Slagle found that these two priorities persisted when the educator group was separated from the non-educator group, and when occupation and age sub-publics were compared. Interesting variations from group to group and on the basis of differing levels of education were noted on items farther down the scale of priorities. Slagle found occupational classification to be more productive than income, age, or sex grouping in indicating differences of opinion regarding the task of the school.

To what extent do the people want what Commager, Conant, Dewey, Rickover, or some other "success figure" wants? Does the people's perception of what Conant and Rickover want coincide with what these men really want? Where and in what way should and do professional educators, subject specialists, foundations, and other groups enter into the decision-making process at the societal level?

To what extent and in what ways is the kind of education the people want actually implemented in curriculum decision-making? And, back to the question of authority and responsibility raised earlier, to what extent and in what ways *ought* the people's want to be implemented?

Empirical research won't answer the "ought" questions. But, until "ought" questions are separated from "what" questions and cast into conceptual constructs from which explanatory hypotheses can be derived and tested, the kind of research needed to explain curricular phenomena and to guide the curriculum worker in his inevitable decisions of "how" and "when" will not be forthcoming.

Institutional-Instructional Levels and Curriculum Decision-Making

As Chapter IV is devoted to curriculum planning and development at the instructional level, this section deals primarily with decisions and decision-making processes involved in planning and developing curriculums for various types of institutions.

Curriculum decision-making at the institutional level pertains to a specific educational institution or group of institutions having identifiable students, teachers, patrons, service areas, and sanctioning bodies. There appears to be considerable agreement among curriculum theorists regarding the major tasks of curriculum planning and development encountered at this level (17, 43, 47): determination of objectives; identification of the kinds and range of learning opportunities pertinent to these objectives; selection of designs or patterns through which these opportunities may be most effectively provided; and development of procedures for evaluating, changing, and improving the curriculum.

Educational proposals and decisions at the societal level become one of several sources of data to be considered in decision-making at the institutional level. As Lieberman (25) pointed out, however, it is naive to believe that local school boards actually control all the decisions—about the curriculums and about other matters—pertaining to their schools. Campbell (6) termed this belief “folklore,” citing state and federal supreme court decisions to document his statement that the public schools have always operated within the framework established by the states and that federal influences have always been prevalent. He went on to observe: “Actually, current realities may be more in keeping with what our public policy for education ought to be than the prevailing fantasy is.”

The question of who should make what decisions is as complex at the institutional as at the societal level. Hanna's (21) proposal for a national curriculum stirred much debate. Key questions regarding such a proposal are: “What curricular questions at what levels of generality and specificity can best be answered at the national level?” and “How are the answers to be used as data-sources for decisions appropriately left to the local level?” Conant (8) pointed to the uselessness of only one year of foreign language in high school; nonetheless, uninformed local decisions frequently condone such practice.

How institutional curriculum decisions are influenced and made is a provocative question for research. Certainly, the official pronouncements of boards of education or trustees responsible for specific institutions constitute inescapable sources of data for the professional. What views do board members hold? What views of what groups shape the decision-making processes of individual board members? Is there a relationship between values and/or educational viewpoint of certain groups and curricular practices at a given time in a given place? McPhee's (28) study of the relationship between individual values, educational viewpoint, and local school approval provided a basis for needed research. If the phrase “identifiable curriculum practice” is substituted for “local school approval,” it becomes apparent that McPhee's model can throw light on the kinds of questions raised. Preliminary research into community power structure as it affects local school policy would give some needed indications of the most productive groups to sample.

In one sense, a rational set of goals for an educational institution would be those agreed upon by the sanctioning body (community), faithfully transmitted through the agency of that body (board) to the professional leader (superintendent), and accurately translated by the professional group (teachers) into specific educational objectives. The superintendent (or other top-level executive) is a cultural hybrid linking confused and confusing cultural expectations from without and professional decision-making processes within.* Hencley's (22) study, however, causes one

*For clarification of this concept, the writer is indebted to Alicja Iwanska, “The Role of the Curriculum Maker in Cross-Cultural Perspective” (unpublished paper).

seriously to question the rationality in the process at the vital point of this link. He examined congruence in perceptions and expectations held by school superintendents and their major reference groups with regard to the superintendent's role. The sample consisted of superintendents, members of the boards of education, and selected teachers, principals, and members of the PTA councils in 15 cities of Indiana, Illinois, and Wisconsin. Hencley found conflict between the superintendents' beliefs regarding their role and their perceptions of the expectations of these other reference groups regarding their role. Superintendents' perceptions of the beliefs of others and the actual beliefs of others also conflicted, but the actual beliefs of superintendents and of the several reference groups did not significantly differ. His data suggest that superintendents experience significant difficulty in assessing accurately the true expectations of others. The effectiveness of superintendents as interpreters of what various groups want for their schools must be questioned. Curriculum literature, emphasizing rational, intellectual processes of transmitting societal concerns into institutional curriculums, largely ignores certain operational facts of life.

The professional educator seeks to make formulations of educational objectives useful, whatever their derivations may be. The authors of Chapter III state that educational objectives, to be of maximum usefulness, should indicate both the kinds of behavior desired in the learner and the range of content or subject matter to be dealt with. They identify a present trend toward emphasis on defining content, citing a series of large-scale demonstration projects in mathematics, languages, and the physical and biological sciences that are now influencing the secondary-school curriculum. Such a trend, if not carried too far, might balance the trend, which has been developing slowly over the last 40 years, toward emphasis on the behavioral aspect of education (17, 47). Interest in the behavioral considerations recently found expression through a taxonomical analysis by a group of college examiners (4). A study at the secondary-school level (13) supplemented an earlier study at the elementary-school level (23); both emphasized learner behavior. All three studies are being used to guide test preparation and evaluation procedures.

Discussion of educational objectives up to this point has implied emphasis on teacher clarification of desired learner behavior. Such an emphasis could readily lead to the conclusion that appropriate teacher behavior is best derived from improved insight into learning and, subsequently, into how learning is best induced. Smith and others (42), while not denying the possibility of deriving a theory of teaching from a theory of learning, were not impressed by past progress toward this end. Teaching is one thing and learning quite another, they maintained. Smith and his research team, exploring the logic of teaching as exhibited in classroom discourse (2), broke such discourse into pedagogically significant units, which they then classified as logical operations. Their conclusion: there are logical operations in teaching, some more prevalent than others, notably

those of describing, designating, and explaining, in that order. Smith and his colleagues further noted a variation in frequency of these logical operations with a variation of subject matter.

As is so often the case with new and promising approaches, the surprising simplicity and straightforwardness of Smith's approach cause one to wonder why it was not exploited long ago. Smith would be first to admit that it is incomplete; his other writings make this point clear. Nonetheless, his findings have high-level potential significance as guides to the selection of procedures to assist teachers to perform according to the demands of certain kinds of teaching.

For several decades, teacher groups have engaged in formulating comprehensive sets of educational objectives. Nerbovig's (30) study revealed that elementary-school teachers, especially those with considerable teaching and curriculum-planning experience, use objectives to relate their planning, selection of learning opportunities, and evaluation of pupil progress to educational objectives. However, there appear to be no studies establishing an actual relationship between increased clarification of educational objectives and improved discrimination in the selection of classroom learning opportunities for students. In the realm of evaluation, Bloom and his associates (4) found little teacher appraisal of cognitive behavior above the level of mere possession of information, even when stated objectives called for more profound levels of cognition.

One of the reasons why a relationship between teachers' clarification of objectives and specific classroom practices has not been established may be that both aspects of curriculum planning have been global. Wood's (50) attempt to classify objectives for teacher education from an analysis of catalogs from 239 institutions of higher learning revealed part of the problem: For the most part, the statements of objectives were too general or broad to be classified by any taxonomical scheme. Provus (33) illuminated another part of the problem: Educators are likely to see only one type of behavior in an educational objective when, in reality, two or more may be involved. He investigated social problem-solving behavior, identifying two affective behaviors in what at first appears to be a strictly cognitive process. He did not identify any significant relationship between these affective behaviors and intelligence as measured by IQ. Failure to recognize the presence of these behaviors in an otherwise cognitive objective could well result in failure of teachers to provide instructionally for a significant part of the behavioral change sought. Further analysis of the structure of educational objectives is needed, together with analyses of the kinds of teaching and learning processes necessary to attainment of all parts of a single objective.

It is a popular belief in some educational circles that involvement of teachers in curriculum planning leads to increased satisfaction on the part of teachers and increased learning by students. McGuire (26), however, was unable to obtain evidence in support of the following proposition: The participation of teachers in co-operative programs of curriculum planning

results, other things being equal, in significantly greater improvement in student achievement than that which occurs when the curriculum is planned either by administrative personnel alone or by teachers working individually. Sincok (40) formulated a model separating research (of an action type) from nonresearch methods, and consensus group processes from processes based on dependency on status leaders in curriculum planning. He was unable to establish a significant relationship between method or process used and satisfaction of teachers with curriculum study programs. Nonetheless, the teachers scored the consensus-research combination highest as their ideal model for curriculum study. Apparently, however, they were dissatisfied with the relative amounts of consensus-research experienced in the projects. Much remains to be learned about *what* should be planned by teachers in improving curriculum practices, and *how*.

No new curriculum designs were forthcoming. It is yet too early to determine whether the two-track plan devised by Stoddard (45), team-teaching projects, and widespread interest in nongrading will result in fundamental reordering of the elementary-school curriculum. Other chapters of this issue report critical re-examination of content at all institutional levels, different approaches to curriculum organization and presentation in various fields, and earlier presentation of content formerly taught at higher grade levels. Such trends at the institutional level should be compared with proposals at the societal level reported earlier in this chapter.

One trend reported in Chapter III deserves emphasis. Rapid accumulation and reordering of knowledge render obsolete the old additive approach to curriculum planning. One alternative, long recognized by some theorists, proposes the selection of a few major principles, ideas, generalizations, or methods of inquiry and the organization of relevant content around them. The need for approaches of this sort is now urgent. Dooley's (10) dissertation, dealing with geographic concepts, and a series of dissertations in the social studies published by Stanford University (1, 12, 14, 31) offered methodological and substantial suggestions for organizing the various fields longitudinally. Until fields of knowledge are viewed and catalogued in this way, schools and school systems attempting to break down the lock step of grade structure will not move far beyond the grade-level, topical placement of subject matter with which we are now plagued. There is no need, however, for the entire process of developing new approaches to be duplicated from the bottom up by each institution. This is the kind of undertaking best assumed by major research centers, which could then disseminate findings for appropriate consideration at the local level.

The college subject-matter specialist increasingly is becoming a self-styled expert in curriculum planning at lower levels of education. Ruml and Morrison (37), however, seriously questioned the ability of college personnel even to plan respectable curriculums at the college level, main-

taining that college departments, in the main, are unable to rise above departmental self-interests to unbiased consideration of what constitutes first-rate general education. Ruml and Morrison recommended increased board study of curriculum questions and the establishment of faculty-trustee curriculum committees having powers transcending departmental authority. Goodlad (19) proposed a three-dimensional model for organizing and interrelating data relative to the subject, the learners, and learning processes at both institutional and instructional levels; such a model would provide a basis for balance in curriculum organization, thus avoiding the familiar swing of the pendulum from child-centered to subject-centered extremes.

Tjerandsen (46) observed an unfortunate tendency of curriculum recommendations in social-science general education to reduce complex or composite problems to only one, or a few, of the considerations involved. Such reduction, he claimed, ignores the fact that the problem of the curriculum necessarily involves method as well as subject matter, subject matter as well as aims, and some rational organization of these aspects of curriculum into a meaningful pattern. He developed a scheme involving these necessary components and used it to analyze 63 articles in the periodical literature dealing with general education and the social sciences. Among his findings were: (a) With but few exceptions, the papers omitted discussion of aims, or subject matter, or mode of operation, or two of these. (b) Even though several kinds of conclusions about the curriculum were treated, they were not treated in terms of their interrelationships, and thus no structured form of the curriculum emerged. (c) In general, conclusions were offered without appeal to a sufficient range of grounds or sources of data to disclose adequately the reasons for arriving at them. Furthermore, only a few writers indicated their intentional restriction of treatment, suggesting a lack of awareness as to what an adequate treatment should include. It would appear that these social scientists, subject-matter specialists, strike out as curriculum experts.

Tjerandsen's study further supported the conclusion that curriculum is not yet widely established and recognized as a field of disciplined inquiry—with its unique problems, methods, and data-sources—even by educators planning for their own institutions.

In Conclusion

Curriculum study needs theoretical constructs from which hypotheses can be derived and empirically tested with a view to determining, for example, how curriculum content has been established. From this chapter and subsequent ones could be derived a long chapter simply listing the multitude of topics worthy of research. A few are proposed, to suggest the richness of the potential harvest awaiting the eager researcher's whetted scythe:

1. Conceptual systems which identify the major questions to be answered in developing a curriculum must be rigorously formulated. The elements that tie these questions together in a system must be classified; subordinate questions must be identified and classified properly in relation to the major questions; sources of data to be used must be revealed in answering the questions posed by the system; and the relevance of data extracted from these sources must be suggested (18).

2. Theoretical constructs are needed from which research studies may be derived to demonstrate how values and expectations of individuals and groups find their ways through various channels of communication and political (conceived in the broadest sense) structures to influence curriculums.

3. Studies are needed to determine what types of subject matter (languages, for example) are best taught simultaneously, as contrasted with those best taught consecutively.

4. Studies are badly needed to show with rigor and precision how best to arrange material in a field for effective learning. This problem is of broader significance than the traditional problem of grade placement of content. The best solutions will not be forthcoming from analysis of subject matter alone. To lay out material according to some principles of increasing complexity derived from the subject is one thing; to provide sequences of learning opportunities according to insights derived for observing how students of varying abilities and past accomplishments best learn is quite another.

5. Taxonomical analyses of educational objectives must be extended into psychomotor and affective realms, and potential uses of resulting taxonomies must be more thoroughly exploited. In addition, structural analyses of objectives would help to reveal to teachers the range of specific behaviors with which they must cope in seeking to achieve any broad educational goal.

6. Global approaches to the establishment of relationships between curriculum-planning processes and improved instruction and learning must be replaced by research studies more precisely isolating and comparing process-product factors.

7. There is need for further research exploration of the teacher-pupil relationship (as revealed and expressed in the learning-teaching act) examined in the socio-psychological framework of reference groups and role conflict.

It is conceivable that the two-dimensional model developed by Getzels (15) and productively applied to the understanding of administrative behavior (20), supervisory processes (27), and instructional groups (16) could be applied equally productively to the understanding of certain curriculum decision-making processes. Curriculum theorizing to date is best described as abstract speculation; curriculum research as "dust-bowl" empiricism; and curriculum practice as rule-of-thumb guesswork (often a wet thumb, at that, held aloft to test the direction of the prevailing

breeze). Perhaps increasing interest in curriculum as a field, and in curriculum problems generally, will lead to the reporting in subsequent issues of the REVIEW of conceptual schemes which separate logical from empirical questions and point to appropriate sources of data; theoretical constructs which lead to meaningful, cumulative empirical research; and curricular practices which stem from answering appropriate questions with tested data selected from pertinent sources.

Bibliography

1. ANDREWS, CLAY S. *Social Science Generalizations for Use in the Social Studies Curriculum: Organizing and Governing*. Doctor's thesis. Stanford, Calif.: Stanford University, 1957. 165 p. Abstract: *Dissertation Abstracts* 17: 2464-65; No. 11, 1957.
2. ASCHNER, MARY JANE M. *The Analysis of Classroom Discourse: A Method and Its Uses*. Doctor's thesis. Urbana, Ill.: University of Illinois, 1959. 219 p. Abstract: *Dissertation Abstracts* 20: 221-22; No. 1, July 1959.
3. BEAUCHAMP, GEORGE A. "Curriculum Organization and Development in Historical Perspective." *Review of Educational Research* 27: 241-49; June 1957.
4. BLOOM, BENJAMIN S., editor. *Taxonomy of Educational Objectives: The Classification of Educational Goals: Handbook I, the Cognitive Domain*. New York: Longmans, Green and Co., 1956. 207 p.
5. BRICKMAN, WILLIAM W., editor. "The John Dewey Centennial." *School and Society* 37: 369-408; October 10, 1959.
6. CAMPBELL, ROALD F. "The Folklore of Local School Control." *School Review* 67: 1-16; Spring 1959.
7. COMMAGER, HENRY STEELE. "A Historian Looks at the American High School." *The High School in a New Era*. (Edited by Francis S. Chase and Harold A. Anderson.) Chicago: University of Chicago Press, 1958. p. 3-19.
8. CONANT, JAMES B. *The American High School Today: A First Report to Interested Citizens*. New York: McGraw-Hill Book Co., 1959. 140 p.
9. COUSINS, NORMAN, editor. "John Dewey Centennial: A Special Section." *Saturday Review*, November 21, 1959. p. 1-62.
10. DOOLEY, M. LOUISE HOLLAND. *A Compilation and Validation of Basic Geographic Concepts for Inclusion in School Curricula from Grades One to Twelve*. Doctor's thesis. Boston: Boston University, 1957. 212 p. Abstract: *Dissertation Abstracts* 17: 2243-44; No. 10, 1957.
11. DOWNEY, LAWRENCE W. *The Task of the Public School as Perceived by Regional Sub-Publics*. Doctor's thesis. Chicago: University of Chicago, 1959. 243 p.
12. EMMERSON, HAROLD G. *Social Science Generalizations for Use in the Social Studies Curriculum: Providing Recreation*. Doctor's thesis. Stanford, Calif.: Stanford University, 1957. 155 p. Abstract: *Dissertation Abstracts* 17: 2534; No. 11, 1957.
13. FRENCH, WILLIAM M., and OTHERS. *Behavioral Goals of General Education in High School*. New York: Russell Sage Foundation, 1947. 247 p.
14. GEER, OWEN C. *Social Science Generalizations for Use in the Social Studies Curriculum: Protecting and Conserving Human and Natural Resources*. Doctor's thesis. Stanford, Calif.: Stanford University, 1959. 190 p. Abstract: *Dissertation Abstracts* 19: 2877-78; No. 11, 1959.
15. GETZELS, JACOB W. "A Psycho-Sociological Framework for the Study of Educational Administration." *Harvard Educational Review* 22: 235-46; Fall 1952.
16. GETZELS, JACOB W., and THELEN, HERBERT A. "The Classroom Group as a Unique Social System." *The Dynamics of Instructional Groups*. Fifty-Ninth Yearbook, Part II, National Society for the Study of Education. Chicago: University of Chicago Press, 1960. Chapter 4, p. 53-82.

17. GOODLAD, JOHN I. "Current Curriculum Trends." *Materials for Reading*. (Edited by Helen M. Robinson.) Chicago: University of Chicago Press, 1957. p. 7-12.
18. GOODLAD, JOHN I. "The School Scene in Review." *School Review* 66: 391-401; December 1958.
19. GOODLAD, JOHN I. "Three Dimensions for Organizing the Curriculum for Learning and Teaching." *Frontiers of Elementary Education III*. (Edited by Vincent J. Glennon.) Syracuse, N.Y.: Syracuse University Press, 1956. p. 11-22.
20. GRIFFITHS, DANIEL E., and IANNACONE, LAURENCE. "Administrative Theory, Relationships, and Preparation." *Review of Educational Research* 28: 334-57; October 1958.
21. HANNA, PAUL R. "Design for a National Curriculum." *Nation's Schools* 62: 43-45; September 1958.
22. HENCLEY, STEPHEN P. *A Typology of Conflict Between School Administrators and Their Reference Groups*. Doctor's thesis. Chicago: University of Chicago, 1960. 147 p.
23. KEARNEY, NOLAN C. *Elementary School Objectives: A Report Prepared for the Mid-Century Committee on Outcomes in Elementary Education*. New York: Russell Sage Foundation, 1953. 189 p.
24. KEARNEY, NOLAN C., and COOK, WALTER W. "Curriculum." *Encyclopedia of Educational Research*. Third edition. (Edited by Chester W. Harris.) New York: Macmillan Co., 1960. p. 358-65.
25. LIEBERMAN, MYRON. *The Future of Public Education*. Chicago: University of Chicago Press, 1960. 294 p.
26. MCGUIRE, GEORGE K. *The Effect on Student Achievement of Teacher Participation in Curriculum Planning*. Doctor's thesis. Chicago: University of Chicago, 1959. 244 p.
27. MACKENZIE, GORDON. "Expectations That Influence Leaders." *Leadership for Improving Instruction*. 1960 Yearbook of the Association for Supervision and Curriculum Development. Washington, D.C.: the Association, a department of the National Education Association, 1960. Chapter 3, n. 67-87.
28. MCPHEE, RODERICK F. *The Relationship Between Individual Values, Educational Viewpoint, and Local School Approval*. Doctor's thesis. Chicago: University of Chicago, 1959. 161 p.
29. MARTIN, DAVID WARD. *American Education as Seen in Periodical Literature, 1956-58*. Doctor's thesis. Columbus: Ohio State University, 1959. 93 p. Abstract: *Dissertation Abstracts* 20: 2102-103; No. 6, December 1959.
30. NERBOVIG, MARCELLA H. *Teachers' Perceptions of the Functions of Objectives*. Doctor's thesis. Madison: University of Wisconsin, 1956. 237 p. Abstract: *Dissertation Abstracts* 16: 2406-407; No. 12, 1956.
31. PECK, ALBERT D. *Social Science Generalizations for Use in the Social Studies Curriculum: Expressing and Satisfying Esthetic Needs and Impulses*. Doctor's thesis. Stanford, Calif.: Stanford University, 1958. 180 p. Abstract: *Dissertation Abstracts* 19: 254-55; No. 2, 1958.
32. PHI DELTA KAPPAN. "The Commissioner Refutes the Admiral." *Phi Delta Kappan* 41: 299-302; April 1960.
33. PROVUS, MALCOLM. *Some Affective Modes of Behavior in Relation to Problem Solving Behavior in Social Studies*. Doctor's thesis. Chicago: University of Chicago, 1960. 160 p.
34. RICKOVER, HYMAN G. *Education and Freedom*. New York: E. P. Dutton and Co., 1959. 256 p.
35. RICKOVER, HYMAN G. "The World of the Uneducated." *Saturday Evening Post* 232: 19, 59; November 28, 1959.
36. RIESMAN, DAVID. "Teachers as a Counter-Cyclical Influence." *School Review* 65: 78-91; March 1957.
37. RUMI, BEARDSLEY, and MORRISON, DONALD H. *Memo to a College Trustee*. New York: McGraw-Hill Book Co., 1954. 94 p.
38. *School Review* 67: 1-121; Spring 1959.
39. SEAGER, ROGER C. *The Task of the Public School as Perceived by Proximity Sub-Publics*. Doctor's thesis. Chicago: University of Chicago, 1959. 251 p.
40. SINCOCK, WILLIAM R. *Teacher Reaction to Certain Practices in Curriculum Study Programs*. Doctor's thesis. Chicago: University of Chicago, 1957. 143 p.

41. SLAGLE, ALLEN T. *The Task of the Public School as Perceived by Occupation and Age Sub-Publics*. Doctor's thesis. Chicago: University of Chicago, 1959. 258 p.
42. SMITH, B. OTHANEL, and OTHERS. *A Study of the Logic of Teaching: A Report on the First Phase of a Five-Year Research Project*. Urbana: Bureau of Educational Research, University of Illinois, 1960. 115 p. (Mimeo.)
43. SMITH, B. OTHANEL; STANLEY, WILLIAM O.; and SHORES, J. HARLAN. *Fundamentals of Curriculum Development*. Revised edition. New York: World Book Co., 1957. 685 p.
44. SNOW, CHARLES P. *The Two Cultures and the Scientific Revolution*. The Rede Lecture, 1959. Cambridge, England: Cambridge University Press, 1959. 51 p.
45. STODDARD, GEORGE D. "The Dual Progress Plan." *School and Society* 86: 351-52; October 11, 1958.
46. TJERANDSEN, CARL. *The Adequacy of Current Treatments of General Education in the Social Sciences*. Doctor's thesis. Chicago: University of Chicago, 1958. 260 p.
47. TYLER, RALPH W. "The Curriculum—Then and Now." *Elementary School Journal* 57: 364-74; April 1957.
48. UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION. *World Survey of Education, II: Primary Education*. Paris: the Organization, 1958. 1387 p.
49. WHYTE, WILLIAM H. *The Organization Man*. New York: Simon and Schuster, 1956. 429 p.
50. WOOD, JEAN MARIE. *A Survey of Objectives for Teacher Education*. Washington, D.C.: Commission on Teacher Education, Association for Supervision and Curriculum Development, a department of the National Education Association, March 1960. 80 p. (Mimeo.)
51. WOODRING, PAUL. *A Fourth of a Nation*. New York: McGraw-Hill Book Co., 1957. 255 p.

CHAPTER II

Forces Influencing Curriculum

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IN TODAY'S society changes come at a rate never before approached. To cause such rapid change, there must be forces of unprecedented power, and such forces inevitably affect school curriculums. The school authorities who make a decision about a curriculum and the lay groups and individuals who press for such a decision may not realize that they act in response to an underlying force. It may be years before the connection between background factor and specific decision becomes clear, but the choice is no less a response.

The forces are difficult to identify while we are living in the midst of them. And to assess the contribution of each is almost impossible. Long-term shifts in socioeconomic conditions, international relations, and significant values may have more important results than occurrences that are specific, dramatic, and highly visible.

Three categories of forces influencing curriculums and what research says about them are included here:

1. Forces generated by special-interest pressure groups consciously attempting to direct school policy for their own purposes. These probably exert the most commonly identified pressures upon the schools.
2. Forces arising out of general social and technological trends throughout the world, accentuated by the increased communication among nations and the rapidity of scientific development. The immediate effects of these are difficult to analyze.
3. Forces generated by new insights from the scholarly fields, particularly as to the nature of man as a learner, the dynamics of groups, the nature of the school society, and its relation to the larger community. These insights influence decisions at first only in narrow circles. Over a time, however, they furnish an increasing pressure of ideas upon the professional educator and the public.

Specific Pressures of Special-Interest Groups

The turbulent period covered by this review is marked by activity of pseudo experts in education, armed with the results of some measure of inquiry and adroit in techniques of publicity and persuasion, ready to prescribe specific modifications in school and college curriculums.

Ways in Which Pressure Groups Function

One issue of the *Annals of the American Academy of Political and Social Science* (12) provided a range of helpful background material on the ways pressure groups function to influence legislation and to channel public opinion.

Vincent (150) traced the struggle over federal aid to education and described the stands of pressure groups as reflected in testimony on the Educational Finance Bill of 1954. He concluded that a general program of federal support for education foundered on the issue of what to do about auxiliary benefits from federal funds for Roman Catholic schools; and that school construction proposals were hampered by the background struggle over desegregation.

Pressures over Desegregation

Pressures generated by the 1954 and 1955 Supreme Court decisions ruling racial segregation in the schools unconstitutional precipitated a chain of events having far-reaching effects. This topic was also discussed in the October 1959 issue of this REVIEW (41). The Phi Delta Kappa study by Wey and Corey (152), even though it suffered from vagueness, provided guidelines for desegregation programs based on analysis of the experiences of 70 school districts. The experience of these districts indicated that there is no ideal plan for desegregating schools.

Two problems are the possible loss of jobs by Negro teachers and the frequent need to abandon Negro school buildings. (Some buildings have been turned into recreation centers for Negro communities.) The co-operation of the police in taking firm and quick action if needed was found to be essential. So, also, was firmness in adhering to whatever desegregation plan had been agreed upon by the community at the outset. As far as instruction goes, desegregation seems to have stimulated renewed efforts to improve instructional programs for all children. "Students are making more rapid progress toward race acceptance than are parents. When the students now in school become parents, many of the problems that seem insurmountable will decrease in importance" (152).

Suchman, Dean, and Williams (138), drawing on the Cornell Studies in Intergroup Relations, summarized existing knowledge in the field of social science that has promising relevance to desegregation as a social process, posed propositions for research, and outlined needed studies on desegregation processes. Tumin and others (149) found differences in attitudes toward desegregation among white citizens in Guilford County, North Carolina, related to differences in education, social status, and access to mass media—the "hard core" of opposition being centered in the lowest socioeconomic level of the white population. A negative image of the Negroes was common to the white population, but attitudes toward

desegregation ran the gamut from advocacy to willingness to resort to violence in defense of the *status quo*. The study design was significant in two aspects: the use of a team of graduate students to do the study as an aspect of their training in social research and the use of consultative resources drawn from several universities. Giles (56) summarized desegregation experiences in numerous communities, reviewed research bearing on intercultural patterns and issues, and devoted about one-third of his book to curriculum and instructional implications.

In a broader context, Ammoun (3) reported for the United Nations Subcommission on Prevention of Discrimination and Protection of Minorities. A citizen of Lebanon and Special Rapporteur for the Subcommission, Ammoun surveyed UN agencies, governmental and nongovernmental agencies, and the writings of recognized scholars. He reported rapid progress in most nations of the world toward breaking up traditional systems and sanctions for institutionalized discrimination. Discrimination in education based upon race, color, sex, religion, social origin, property, and political or other opinion is on the wane. Legal discrimination has been virtually eliminated except in a few scattered countries. As a political principle, discrimination in education is no longer defended except in a very few places. This does not mean that discrimination has been eliminated in practice, but it is being driven from positions which even a few years ago seemed impregnable.

Pressures of Specialized Interest Groups

Far more extensive research is needed, carefully designed, to assess the impact of special-interest groups on curriculum and instructional procedures and to assess the effect of such pressures on teachers and professors.

Jones (77) reported the plunge of the American Legion into the field of textbook analysis and criticism during the 1940's, including the later shift to interest in citizenship education. Skaife (132) warned schoolmen about the objectives of the Council for Basic Education, as well as about the nature of its personnel and financing. The impact of this group has been widely felt in education. Particular aspects of its program were assessed by Trow (148) and Hand (63, 64). Careful and extensive research to assess the means and processes by which the Council seeks to influence education should provide a basic contribution to knowledge of the operation of pressure groups. Improved ways of responding to pressures on education might emerge.

The impact of power politics on teachers was described by Burton (28), who showed that attacks on teachers regarding subversive activities often led to voluntary censorship by the teachers themselves of discussion of controversial issues. The pressures felt by college teachers of social science were studied extensively by Lazarsfeld and Thielens (90), who reported incidents of dismissal for unorthodox views and associations. They found

the pressures greatest in first-rank institutions, but they also found in such settings the strongest institutional support for freedom to teach.

Deam (40), using a 20-percent sample of Virginia school board members, superintendents, secondary-school principals, and social studies teachers, found most agreed on the need to deal with 20 selected controversial issues; but he found diffidence about treating the strengths of competing political and economic systems and the purported weaknesses of our own institutional arrangements. Deam concluded from the kinds of reservations expressed that the opportunities for high-school students to grapple with the basic issues of our time are in jeopardy; he believed full and free opportunity to study controversial matters—an opportunity crucial to the maintenance of democratic institutions—to be vanishing.

In response to national criticism, organizations of professional educators, with the assistance of their colleagues in fields of liberal arts, scrutinized the entire process of teacher education in an effort to increase its effectiveness. Smith and Robinson (134) described a summer workshop in which educators of teachers, university and college instructors in academic fields, and public-school personnel worked out some new guidelines for teacher education. The report recommended continued co-operative action by representatives of school administration, teacher education, and the academic disciplines to design and improve teacher education programs. State and federal agencies and legislators, private foundations, accreditation agencies, and other citizen groups, through financial assistance and ideological pressure, are also exerting influences upon schools. For the most part, these influences may have a healthy effect in speeding up curriculum change, but in some instances the demand is for a return to practices which the schools have legitimately abandoned. According to Morphet (110), the causative lag in public awareness of the goals and problems of public education is being tackled successfully in some state and local districts by the appointment of representative citizen groups to investigate school policy and make recommendations to boards of education.

General Social and Technological Forces

A school program may be influenced more by certain social and technological trends than by the efforts of individuals or groups. Such trends are hard to assess while we are still in the midst of them, and little scholarly analysis has been made of their impact. Nevertheless, their influence is significant.

The Impact of Foreign Educational Practices on American Education

The launching of Sputnik in the fall of 1957 inaugurated a period of unprecedented interest in European education generally, and in Russian edu-

cation particularly. The "great debate" on education was intensified as a result of the general economic and technological achievements of other nations. Alleged shortcomings and strengths of education in the United States were projected against the background of European educational practices. The rising tide of concern with European education filled professional literature and was reflected in all mass media of communication. A reorientation of the curriculum along traditional European lines was advocated by many, particular emphasis being proposed on mathematics, sciences, and languages. Such American practices as heterogeneous grouping and the use of the comprehensive high school were questioned. Conant (35) defended the comprehensive high school. Concern was voiced that the academically gifted child is not being sufficiently challenged.

Martin (102), analyzing the writings during the years immediately preceding and following the launching of Sputnik, found that evaluations of American education were more frequently "slightly negative" in character during the post-Sputnik year. Movements toward differentiated education for students of varying abilities and toward a particular concern for gifted students were noted. Opinions favoring utilitarian versus liberal education, and those favoring liberal versus utilitarian education, appeared to be evenly divided.

A generalized impatience with the deliberate, "waiting-for-him-to-grow" pace of American education led toward a partly punitive speed-up and a look toward European education as a model. A number of studies comparing achievement here and abroad appeared. Counts (36), in a scholarly work based on original Soviet efforts, traced the ideological sources of Soviet political and educational philosophy. He pointed to the challenge posed by the achievements of Soviet education. Also based on Soviet sources was a study by Korol (84), who, after surveying Soviet education, presented a detailed analysis of Soviet education for science and technology, documenting and evaluating the extent of its achievements.

Studies comparing the performance of European and American children in arithmetic were made by Buswell (29), Bogut (17), and Kramer (85). Buswell (29), comparing English and Californian children of the same chronological age, and using an English test adapted for the purpose as a measure, found English children superior. Bogut (17), using the same test, found children in St. Paul superior to Californian children, but inferior to the English children (although in the latter comparison differences in the problem-solving part of the test seemed small). In interpreting findings both investigators considered such factors as differing grade placement of topics, effects of mobility, effects of special coaching for crucial examinations in England, and teacher preparation. No information was given regarding the comparative total allotment of time for teaching arithmetic.

Tracy (147), using the Buswell version of the English test to compare North Carolinian children with the Californian and English groups, eliminated the race factor and the mobility factor by selecting *white* children from *stable* urban communities. (In discussing the findings from his study,

Buswell had pointed to these two factors, among others, as possibly contributing to the lower achievement of the Californian children.) Though the North Carolinian group scored higher than the Californian group, it still scored significantly lower than the English group, whose superiority was more marked in the computational than in the problem-solving part of the test.

Since the English group was tested at the point of terminal training in arithmetic, a point which is not normally reached in the United States until the eighth grade, Tracy also compared the achievement of English children of age 10.8-11.7 with eighth-grade children in North Carolina and found no significant difference between the achievements of the two groups on the total test. However, the North Carolinian group made relatively higher scores on the problem-solving part of the test, whereas the English group made relatively higher scores on the computational part of the test.

Kramer (85), using an adapted form of the arithmetic section of the *Iowa Tests of Basic Skills* to compare Dutch children in the fifth and sixth grades with Iowan children in grades 5 through 8, found the Dutch children considerably more advanced both in problem-solving ability and in understanding of concepts and processes. In evaluating the results, he considered various factors, including the widely differing allotments of time for arithmetic teaching.

The Kramer study found more drill content and more emphasis on mental arithmetic in Dutch textbooks. In grade placement of arithmetic topics, the Dutch books are approximately one year ahead of the American. More time is allotted to arithmetic in the Dutch schools. The pupil-teacher load in Dutch schools typically is heavier than in American schools. American instructional equipment is typically superior to Dutch. The sixth-grade average performance in the Netherlands was higher than the American eighth-grade average on arithmetic problem-solving. The marked superiority of Dutch pupils at low-ability levels suggested greater selectivity in the Dutch elementary schools as a partial explanation of the difference in overall means. Performance at top-ability levels was similar for eighth-grade American students and sixth-grade Dutch students. Dutch children outperformed American children by a wide margin, but, when they were compared after a comparable amount of time devoted to formal instruction in arithmetic, their achievement was about the same.

These studies revealed such problems as those of equating age, amount of instruction, and tests used, so that the meaning of the results would be clear. Although these isolated studies indicated some greater specific achievements for European children, investigations comparing over-all effectiveness for long-range goals of foreign and American schools have not been made.

There is the possibility, however, that a thorough review of current practices in the United States will result from the claim that European education is superior. Gilchrist (55), reviewing recent innovations in high-school curriculums, discussed the experimental program in the improvement of

physics instruction at Evanston, Illinois, and the efforts of the Physical Science Study Committee of the Massachusetts Institute of Technology directed by Professor Zacharias. Improvement in mathematics instruction is the goal of projects at Illinois, Yale, and Stanford. Steady revision of foreign language instruction has increased the use of teaching aids, especially tape recorders, and put new emphasis on direct method, in which speaking and hearing the language precedes the reading of it.

Scientists' Influence upon Curriculum

An accelerated scientific and technological revolution was felt in the public schools. Scientists and educators alike re-evaluated their objectives, but evaluation of educational goals was hampered by lack of communication between educators and scientists. The former, trying to interpret scientific and technological trends which will vitally affect the educative process, were handicapped by lack of highly specialized understandings of the narrow disciplines within which scientists work. Scientists, on the other hand, often expected to transfer their training in particular disciplines to the curriculum without understanding the total educative process.

Many scientists have been highly critical of some of the social objectives of education. Some, like Hofstad (67), feared elimination of "the incentive of competition" that a "more fundamental curriculum" would furnish. Others, like Davidon (39), contrasted various American studies of scientific training in the USSR with Soviet reports on their own science education. Still other scientists were concerned with the fragmentation and fractionalization of the scientific disciplines. Meyerhoff (105), for example, took the position that schools and colleges should undergo a "restoration of learning" in the pure sciences to be accomplished by an all-out effort of the local school systems and the federal government.

Less critical than these, however, was a group of scientists and technologists who related the problems of education in a scientific age to the social role which the scientist must play. Rabinowitch (122) argued that we should not "abandon education for life"; that "to prepare our children to meet this dangerous and real world they will face we will have to give more attention to the place of science in the curriculum, since science now is the 'growing tip' of civilization." Many scientists saw a curriculum as primarily intellectual in character. Taylor (141), Schwab (127), and Barnes (7) took such a view. Others, in a variation on the same theme, saw the sciences as more closely related to the humanities. Ashby's "technological humanism" (4) was an intellectual approach to a philosophy of social control earlier voiced by Dewey in his "evaluation of technology" (92).

A last group of scientists came closest to the humanizing (as contrasted with the humanistic) objectives of curriculum. DuBridge (44), for ex-

ample, expressed the hope that students of science could return to that adventurous spirit of exploration which characterizes all investigation of the world of ideas. Taton (140) made a case for the teaching of the history of science as a means of inculcating a more functional understanding of the scientific age. Weaver (151) stated that the average citizen, "who fears science, should learn about it, so that it can be an exciting intellectual companion and a useful servant."

A few of the scientific and technological journals attempted to evaluate the impact of the scientific revolution on the schools and on society as a whole. DuBarle (43) called this the "paradox of the scientific mind": that the "scientist is torn out of his world of universality and integrated into a particularistic system which tends to cultivate science and foster its human implications only for its own survival and prosperity and for the spread of its own dominion." Interestingly, only two of all the journals reviewed (26, 71) devoted any space to discussion of the broader "human implications" of scientific research or technological development. One issue of the *Bulletin of the Atomic Scientists* was devoted to considerations of the social role of scientists as men of social conscience (61), or—in the statements by Rabinowitch (121) and Bronowski (23)—as citizens with more than a casual voice in political affairs. Still others in this same group, like Oppenheimer (115) and Thurring (145), believed that "international communities" of scientists should be established to seek out the implications of scientific development as it is related to policies of nations and broad social change. Significantly, too, this issue of the *Bulletin* was the only publication by scientists in which other disciplines were brought to bear on the problems created by the scientific revolution. In a joint exploration of common problems, specialists in the fields of sociology (123), psychiatry (101), and economic philosophy (124, 125) interpreted the behavioral disciplines; and physicists (95) and chemists (95, 151) interpreted their scientific fields.

Scientific and technological journals occasionally editorialized on curriculum or educational policy. Koontz (83) reflected segments of opinion of the American Medical Association; Hofstad (67), in the *American Scientist*, typified groups critical of public-school curriculums.

Various scientific and technological journals reported studies related to education in a highly specialized framework, dealing primarily with research projects, special training needs, and financial support. Some of the indexes, such as *Biological Abstracts* (11) and *Science* (128), included more items concerning education than heretofore, but such studies were of a highly technical nature.

Studies interpreting various scientific and technological disciplines as these affect curriculums appeared, but sparsity of such publication indicated need for better communication between scientists and educators in joint efforts toward curriculum development.

The Educational Impact of Alienation of Youth from the General Culture

Increasing development of a subculture of adolescents had an impact upon curriculum planning. In some degree adolescents have always set themselves aside from the culture of children and adults, but now the adolescent subculture is both more highly organized and more clearly separated. Alienation of youth from the general culture is evidenced by such things as a rising tide of delinquency (6); increasing influence of adolescent peer groups (155); adolescent fads of dress and speech; the special literature of comics and paperbacks primarily perused by this age group; particular television and motion-picture programs for youth; the cut-down, reassembled cars peculiar to teen-age drivers (65, 96).

This state of affairs influences educators, for they have a direct obligation to help induct youth into the adult society and to help youth meet its problems. When the two goals conflict, the task of the curriculum worker is complicated. Furthermore, the reaction of the lay citizenry to increasing delinquency and youthful crime, as well as other manifestations of the adolescent subculture, includes a good deal of sheer indignation and hostility toward youth. Such feelings in the adult citizenry frequently force "get tough" programs in the schools and, in general, influence curriculum planning.

The social causes for this alienation are manifold and hard to pinpoint. They may well be related to population growth, increased mobility, and urbanization. Miller and Swanson (107) set forth some factors in present-day life and family patterns which may be responsible. Parental anxiety is focused on one or two children in the typical modern home, making the children's achievement of independence more difficult than in the days of larger families. (Even though family size has been on the increase in recent years, the size is still small compared to the typical family size of a half-century ago.) Young people today are frequently financial liabilities rather than assets to their parents. The needs of children are often given priority over adult needs, and the heightened unconscious hostility of adults toward young people is reflected in the older age group's harshness to youth. There are many subtle encouragements by mass media toward development of a separate youth culture. Young people face severe value conflicts between competitive individual goals and more socially oriented endeavor, especially in choosing a life occupation and vocational plan. The organization of schools along age-grade lines from kindergarten, and the impersonal atmospheres of many large high schools, may be additional factors.

Sears and others (129) commented upon the unintended effects of a cult of overpermissiveness in the child-rearing practices of some present-day parents. Whereas many parents know that punishment may leave a strongly hostile drive bottled up within a child while eliminating a few

specific responses, some parents have assumed (wrongly, according to Sears and his colleagues) that to avoid punishing their children for aggression they must allow their children's aggression to go unchecked. But permissiveness increases the amount of aggression in the home and child. An angry child is not usually a happy, affectionate, or social child. He may be a source of discomfort to his family and friends and to himself. Overpermissive child-rearing practices may be still another source of youths' alienation from adults.

It is difficult to document the exact amount of increase in delinquency (98). Moore (109) pointed out the lack of uniformity of definitions of delinquency, differences in reporting and handling delinquents, and variations in referrals to other agencies, all of which make it hard to gather accurate information on the extent of juvenile crime. Kvaraceus (87) reported that adolescents are conscious of society's official rules, but that some lower-class adolescents automatically violate certain legal norms by following behavior patterns approved by their socioeconomic groups. In urban centers many activities are illegal today which were accepted as normal adolescent pranks during parents' youth.

Perhaps educators underestimate the drive of adolescents to close the gap between themselves and adults. Carlson and Sullenger (30) reported that Omaha high-school youths desired counseling for the attainment of physical and mental health, charm, successful interpersonal relations, a happy home life, and effectiveness in work and study; in choice of a vocation and use of leisure time; and in development of a philosophy of life. One survey (100) indicated that boys 14 through 16 years of age were more concerned with achievement and gaining emotional and social maturity than with leisure-time interests. Activities which let them assume responsibility or take adult roles at home or work made these boys feel important and useful.

Conflicts between the adolescent subculture and the general culture have resulted in attempts to bring adolescent behavior "in line" with adult perceptions of what it should be, primarily through punitive action. Delinquency studies indicated efforts through legislation to punish deviant behavior. Schools felt pressure toward greater strictness. The popular press, other mass media, and changes in school policies showed a tendency toward more punitive measures. Research is needed to determine the nature, extent, and value of these policies. Studies of the effects of expulsion, exclusion, and exemption should guide further efforts to cope with the behavior of youth.

Educators and community workers intensified their efforts to gain greater understanding of adolescent problems and to provide facilities and personnel to guide adolescents. The Phoenix Youth Study Proposal for Delinquency Reduction (31) is an example, and the school-community projects reported by Kvaraceus (87, 88) are others. The development of child-guidance clinics and their availability to schools constitute an-

other effort to approach the problems of youth positively (143). The need of teachers for greater knowledge about youth has been emphasized in many professional articles.

The alienation of youth from adults may be just one more example of general social trends toward depersonalization and isolation of individuals. Research in mental health (91) identified such alienation as one reason for the general increase in mental disease. It may be desirable that schools consciously "counter-trend" these forces of personal isolation. Drives for power, status, and prestige over others seem to be proportionate to lack of satisfactorily close, intimate, warm relations with others (117).

The Influence of Shifts in Values

Getzels (54) found "sacred values"—democracy, individualism, equality, and human perfectibility or optimism—still cherished, but identified certain "secular" values which are shifting "from work success ethic to sociability; from future-time orientation to present-time orientation; from personal independence to group conformity; from Puritan morality to moral relativism." Younger teachers and principals emphasized the emergent orientation, and older teachers the traditional value patterns. Superior students were found to prefer a traditional orientation, regardless of school and social class. Parochial-school students' values were significantly more traditional than public-school students'. Differences in values were found among students in different types of schools and within schools. However, no significant differences between values held by freshmen and values held by seniors were noted. Whatever values a student brought to the high school were changed little in high school.

The Influence of Changes in Family Life

The meaning for schools of much of the current accumulation of data on family life is not yet clear, although Freeman (52) presented 23 implications for education. Early estimates (78) of the 1960 census results predicted general characteristics of the American family, such as size, composition, urbanization, and economic status. Studies of patterns of family relationships indicated changing roles and functions of family members (25, 104, 156), but no specific trend emerged. Effects of increased mobility were studied in relation to turnover among pupils. Sexton (130) reported as much as 13 percent turnover in some low-income areas and found that frequent change interfered with success in school.

A number of studies of teen-age marriages, which continue to increase, were reported (27, 103, 111). The number of working women increased, as indicated by the National Manpower Council study (112) and Smuts'

historical analysis (135) of the changing role of women in the work world. Nye (113) and Siegel and others (131), studying the effects of mothers' employment upon the adjustment of their children, perceived less detrimental results than had been previously found. This may be the result of better child-care arrangements, of differences in the kinds of women seeking work, of better working arrangements, or of still other related variables. Interest in family research expanded, mostly in the formulation of conceptual frameworks (48) and methodology of study (32).

Mental Health Concerns and the School Program

The mental health movement directed attention to quality of human relationships. In an effort to explain the prevalence of personal unhappiness, marital strife, alcoholism, crime, difficulties in employment, and mental illness in present-day life, attention was focused simultaneously upon social organization, value conflicts, interpersonal relations, and individual life histories. Interdisciplinary research linking many areas of investigation provided, for the first time, a conceptual basis for understanding the individual in his relationships to his primary reference groups and to his society. A breakthrough of discovery is promised in ways to prevent mental illness and promote positive mental health. Jahoda (73) and Smith (133) formulated concepts of positive mental and psychological health in ways that lead to hypotheses that can be tested. Ackerman (1) spelled out the relationships between the mental health of the individual and the functioning processes and values in the family unit and in the wider society to which he belongs, contending that the historical focus on the individual has prevented a perception of the urgency of evaluating mental illness in terms of a family context. A meaningful concept of mental health comprehends the relationship of the functioning of the individual to the human relations patterns of his primary group. Ackerman perceived the ills of individual, family, and society on a continuum.

Schools are taking into account these interrelations between the pupil's effective functioning and that of his family. Parents are involved in curriculum planning; parent-teacher conferences are formally planned; specialists and courses in family life and mental health are being added to school staffs and programs (69, 89). But the attacks upon such efforts as "frills" indicated that they may not be fully successful. Perhaps these well-meant school programs were based upon too naive a formulation of the basic social and psychological processes underlying movement toward more effective functioning. Brim (19) and Kenkel (80) reported no positive conclusions about the usefulness of courses about family life. Hudson (68) indicated the unrealistic content of family-life textbooks for secondary schools. Cumming and Cumming (37) published a dis-

couraging report of their attempts to teach the principles of mental health to a Canadian community. Their direct conceptual approach provoked such hostility and anxiety that it had to be discontinued.

Ojemann and others (114) prepared curriculum materials for elementary and secondary schools on the concepts of mental health; they seem promising, but their usefulness has not yet been fully determined.

Perhaps these efforts simply ran into expected resistances to social change, and particularly to change involving the personality. However, research did not tackle the basic question of the relationship between teaching concepts about effective functioning and the production of effective functioning itself. Apparently the interrelationship is subtle; and methods of instruction, the particular content selected, and the background of teachers assigned to courses dealing with fundamental social and psychological problems may be responsible for negative results. Efforts to apply psychological and social understandings indirectly through community guidance clinics, counseling, and psychiatric consultation with teachers and school personnel fared more successfully (93). Most important of all is the direct application of principles of mental health to all the tasks of education—the basic organization of the school and the curricular experiences of the day.

The Influence of Changes in Group Life

The family studies cited earlier are but one illustration of increased awareness of the interdependence between individual behavior and the group contexts in which the individual lives in this era of increasing automation, urbanization, population growth, and intercommunication.

The development by psychiatrists of therapeutic communities (76) will not come as a surprise to the seasoned educator, who has long projected a school community in which interrelationships of staff would fully facilitate learning, development, and rehabilitation of all the pupils. Understanding of how to organize and promote desirable interrelationships between staff groups and patient groups which arise from attempts to establish therapeutic communities to treat the unemployed, criminal, and mentally ill, should have significance for school administration. Analyses such as that of Zaleznik, Christensen, and Roethlisberger (157) of the total structure of personal interaction around tasks of individuals in business may provide impetus to schools.

Popular interest in Whyte's *The Organization Man* (154) aroused concern about the loss of individuality, and the increasing demand for conformity by organizations. Perhaps some of the attacks upon the schools' emphasis on group life and social goals are a healthy protest against negation of the individual and may not be as damaging as some educators have feared. School life is group life; the manner in which the interrelationships of this group life are organized determines much of what happens to pupils.

Research in school organization developed. Etzioni (45) noted that the usual lines of authority and staff relationships are of necessity reversed in schools. Staff members (teachers) are the "experts" who ultimately implement major goals of the organization, that is, teach. Michael (106) reviewed innovations in high-school organization in a search for determinants of optimum size, and concluded that both small and large schools have their peculiar advantages and disadvantages. He believed that innovations need to be introduced into both types of schools to offset disadvantages created by their largeness or smallness, pointing out that small schools try to increase their status by becoming large schools, whereas large schools break down their organization into units to obtain the advantages peculiar to small schools.

Terrien (142) noted—along the lines of Parkinson's "law" (118)—that as organizations grow in size, the proportion of personnel devoted to administrative duties increases. Thomas (146) found that personnel of smaller units of departments of welfare service evinced greater agreement in their understandings of their roles, greater breadth of conception, higher ethical commitment, and better quality of work performance. Hall (62), examining organizational and administrative processes in 27 Illinois school systems, assessed the quality of education by the degree of diffusion of administrative procedures, or the extent to which certain tasks involved staff members in their execution. Further, the proportions of staff in administrative and supervisory work, specialized instruction, and auxiliary work were compared with the proportions in regular teaching. Quality of education determined in this way was related to the level of expenditure per pupil, but was *not* related to the size of the school. This study used measures which were readily quantifiable and applied adequate statistical procedures to the data.

Lynn (97) found small British schools failing to produce, in proportion to their enrollments, numbers of students who later became scholars, and cited the ability of large schools to attract better teachers as one explanation. Also, in Lynn's opinion, it is difficult for teaching to be efficiently organized in small schools, since pupils studying at several different grade levels are grouped together. He believed the large school provides a more stimulating and competitive atmosphere. The student bodies of the larger schools included more children who had higher measured intelligence (8 percent more students passed per 100 candidates), though the difference was not sufficient to account for the fact that graduates of larger schools won twice as many distinctions per 100 candidates as graduates of smaller schools. Admitting bias in favor of large schools, Lynn did not control the selection of students into large and small schools along socioeconomic lines, nor make allowance for the location of these schools in rural or urban areas, nor the variations in value that parents and others attribute to academic success in different places. The number of academic awards and high test results is, of course, but one criterion for judging the success of a school.

Mass Media and Automatic Teaching

The fact that more television sets are available and that programing has increased has raised questions about effects televising may have upon viewers, especially children.

Excessive televising as an "escape" was found to be associated with frustration and dissatisfaction in connection with status among high-school boys by Johnstone (74); and Pearlin (120) found that adults dissatisfied with job or status were partial to "escape" programs. Bailyn (5) found that only 3 percent of the boys in her sample were highly likely to use mass media as an escape, and they were rebellious, independent, and had many problems.

Himmelweit and others (66) refuted a number of myths associated with televising. Children did not become more passive as a result of televising, their eyesight was not damaged, and their school performance was not affected. Televising did not replace reading books or forming friendships. Movie attendance and the reading of comics were reduced. Although viewing habits were sometimes associated with IQ and personality, parents influenced viewing habits more than these two factors. Duller children watched television more than those of higher intelligence; emotional insecurity and maladjustment seem to impel children toward excessive consumption of any available mass medium, including television. If television is available to insecure or maladjusted children, they will view excessively; if not, they will attend movies frequently, listen a great deal to the radio, or devote a large amount of time to reading comics. Children of this type were characterized by being ill at ease with other children, and their teachers often described them as shy and retiring. They preferred plays of two escapist types—adventure-mystery and family serials.

In 1958 the Fund for the Advancement of Education (49) noted that 569 public-school districts made use of regular television in their programs; 117 colleges offered television credit courses; and 241 offered credit for "Continental Classroom," the nationwide network program then offering courses in physics and chemistry. Somewhere almost every college course is offered on television.

In 1952 the Federal Communications Commission decided to reserve one-tenth of the 242 possible TV channels for potential public, educational, noncommercial stations. Studies assessing the effectiveness of TV instruction are now under way. Hagerstown is in the fourth year of a five-year study utilizing six closed-circuit TV channels. Preliminary findings indicated higher achievement scores for students who used educational television, but the findings must be qualified by the fact that students also had teachers and teaching of unusually high quality. Dreher and Beatty (42), in a large-scale experimental study involving the use of matched sections of classes working in a number of subject fields, evaluated the teaching of college courses by television and found it relatively satisfactory. Mastery of sub-

ject matter appeared to be roughly equal in the regular and the television sections; attempts to measure other variables yielded nothing definite.

At the same time at which TV entered the classroom, the "teaching machine" and other automatic teaching devices were added to the list of available "canned" curriculum resources. (See Chapter IV.) How this automation is to be used is an urgent question. Will it displace teachers and add to the impersonalization of school life, or will it free teachers for their primary and unique function as personalizing agents of instruction, specialists in designing constructive interpersonal interaction for pupils?

Impact of Social and Psychological Research Trends upon Curriculums

The methods of behavioral research have yielded much of the knowledge about social forces and their influences upon schools discussed in the preceding sections. Certain trends in research in these disciplines now influence the professional educator and, through him, the curriculum.

Social Groups and the School

The group life of the school is an important part of the social context within which curriculum decisions are made. Research in sociology and social psychology on group life in schools indicated a shift in conceptual focus and a refinement of methodology. The last three years showed a changed emphasis; there was a shift from studies about social class to studies about values, and from studies about classroom social atmosphere to studies about the social climate of the entire school.

For more than a decade educational writings have emphasized the findings of studies which related social class to other variables. Gross (58) thought it possible to conclude that "nearly every phase of school functioning is influenced by the phenomenon of social class." But, he added, many investigators have not noted the negative cases and the variability of educational behavior within each social class. Bronfenbrenner's critical review (22) of studies of social class and child rearing during the last 20 years is illustrative of critiques of both methods and conclusions. He reconciled the many apparent contradictions of the findings of various studies of social class by noting that the studies were done at different times and places. In addition, he noted that innovations in child rearing are accessible to some receptive members of social classes sooner than to others.

Since Hyman (70) reported on how variations in values occur within social classes, researchers have included value considerations as well as factors of social class in their studies. This shift was illustrated by Kohn (82) and Dahlke (38). Parsons (119), utilizing the school class as a unit of analysis, traced what happens as students progress from grade to grade.

He analyzed the way in which the school class operates as a social system in the socialization process.

An important part of the school's function in preparing students for adult roles is the transmission and changing of values. Questions of how the school curriculum can be made more effective in changing students' values arose immediately following the publication of Jacob's conclusion (72) that no significant changes in values of college students could be attributed to the curriculum. Since the curriculum seemed to have little influence on changing values while students were in school, pertinent questions for research became: What influences the acquisition of values? How are values transmitted? How may the school program influence values of pupils? As noted previously, Getzels (54) reviewed the empirical studies of values and saw differences in values among different types of schools and within schools. However, no significant changes in values of students occurred during high-school years. Spindler (136) described how teachers may unwittingly impose their value biases upon students and transmit value conflicts which are present in the culture at large.

One source of information about influences upon the choices and values of students was their subcultures. Some investigators extended the scope of inquiry to include the entire school as a social system. Fielder (47), studying high-school students' perceptions of the hierarchy among student organizations, found a distinct youth subculture. Gordon (57), who studied high-school students, and Freedman (51), who studied college students, found that the student culture built to a peak during the junior year.

Both Gordon and Fielder reported that teachers' judgments of student preferences were inaccurate. Gordon found that school grades were least predictive of student status, and roles in student activities most predictive. Fielder noted the difference between the formal lists of members of school organizations and student comments about their actual membership. The majority of the students were members of the formal organizations of the school, but most of them felt left out and had a sense of estrangement from the school at large, because they were not involved in the power structure. These studies indicated that students develop sets of school norms for behavior, school traditions, and value preferences within the school. Wise curriculum planning would include careful study of student organizations, so that the total education of students would be more deliberate.

The question "To what degree do peers or adults influence decisions and values of adolescents?" was studied by French and others (53), who found that youths rely upon parents in making long-range plans for college, work, marriage, the armed forces, and the like, whereas adolescents are least influenced by parents and more influenced by peers regarding teen-age problems and sex relations. In contrast, Wilson (155) found the role of the school to offset the influence of the family. He reported that the values of the majority of the students in a high school provide a sufficiently significant normative reference to indicate that the ethos of the school

affects student academic achievement, occupational aspiration, and political preferences. For example, Wilson compared the educational aspirations of students from a series of schools, holding constant the parent's occupation. He found that significantly fewer students from the working-class school wanted a college education than students from a predominantly middle-class school, although both groups had parents who were professionals. More research is needed to fit these findings into a scheme which shows how parents, peers, and schools influence values.

The variation of social climate from one school to another has been observed to have important effects upon student choices (34, 74, 155). Coleman (34), in a study of 10 schools, found further evidence of the way the school program, formal and informal, acts to channel student choices along given lines. He believed interscholastic athletics to discourage scholastic attainment, and noted that, in schools which emphasized athletics, students with the highest IQ's did not get the highest grades, whereas in schools without interscholastic athletics, the highest grades were made by students who scored high on IQ tests.

The Interpersonal "Unit" in Psychological Research

Psychology sought what Allport (2) called new "units of measurement." Emphasis, which earlier moved from the part-functioning of organisms, from "faculty" psychology, to study of the "whole person" as an entity, now focused on the interpersonal interaction of individuals. Such a trend can be documented by the growth of research in social psychology (94, 126), group processes (144), interpersonal perception (139), systems of communication (20, 116), and social psychiatry (91). The trend corresponded to that of research in mental health and family structure noted by Ackerman (1).

The subject of study is the individual human being interacting with others. Man's behavior is considered to be jointly determined by the nature of the systems of interaction in which he is functioning and by his own biological and "historical" self which he brings into each relationship. The behavior of some individuals is determined more by their history (15, 16); others, perhaps the more flexible, respond primarily to the forces operating in each situation. Such emphasis is wholly different from the emphasis of the past search for personality "traits." The relatively stable core responses of people are still being investigated (2), but as new methods for changing behavior are identified through work in perception, communication, and group processes, the static personality "trait" is in question. As Blake and Mouton (14) pointed out, "The adjustment of an individual in a group situation is related only in part to personality factors."

The same shift from exclusive concern with the individual to more focus upon interpersonal interaction is an evident trend in psychotherapy. The

use of group psychotherapy increased (13, 81). Bateson and others (10) and Brodey (21) examined family patterns of interaction in an effort to discover how schizophrenia and comparable conditions may emerge. Development of therapeutic communities for psychiatric treatment has been mentioned.

Though it may be some time before these shifts have direct impact upon curriculum planning and classroom procedure, so fundamental a change in approach to the study of persons must in the long run have great effect. If interpersonal interaction is relatively so important in comparison with inner traits as the frontier investigators in psychology assume, then curriculum planning will have to make primary the provision of opportunity for optimal interaction.

Attitudes, Personality, and Education

Educators have long been aware that many attitudes which they attempted to change by presentation of information and by discussion seem too deeply rooted to yield. Ego defenses have been shown to be related to emotionally based attitudes (79). If the attitudes are to change, the defenses may have to change; and, in order to be efficacious, education may have to influence what in the past have been considered the very roots of individual character. The studies of so-called "brainwashing" (46) suggest that it is these character-based attitudes which have been influenced, and influenced by the very same processes which initially built character. Apparently adult character can be changed by strong negative forces; psychotherapy suggests it can likewise be changed by strong positive efforts.

"Understanding" and the Professional Educator

McDonald (99) saw increased understanding of interpersonal interaction as an opportunity for the "profession" of education to further develop. The educator can move away from routine application of teaching techniques and methods as a "craft" to a professional diagnosis of the interpersonal processes of each learning situation and select the appropriate teaching methods from available repertoires. Coladarci (33) defined teaching as an act of inquiry, continuously generating and evaluating procedures, reaching tentative or probable conclusions. Involvement of teachers in action research is one evidence of this trend. The teacher is viewed as a maker and tester of hypotheses. Krumboltz and Farquhar (86) demonstrated the superiority of eclectic teaching methods based upon understanding over rigidly applied instructor-centered or student-centered techniques.

Creativity, Cognition, and New Concepts of Intelligence

Intelligence is no longer conceived as stable, unitary, and uninfluenced by environment. Measures jointly determined by native potential of individual selective sensitivity and by exposure to a series of cultural events were sought (108). Guilford (59, 60) reformulated this new construct of intellect, and attention was directed again to studies of thinking and cognition (9, 24).

There was interest in the nature of creativity (50), imagination (8), and scientific innovation, partly a reflection of the space-age valuation of scientific endeavor, and partly a result of better understanding of intelligence. With a changed conception came attempts to locate this talent more efficiently (18). Eventually this research will influence the practice of intelligence testing in schools and the use of intelligence-test results for grouping and instructing pupils.

Learning and Behavioral Goals

Behavioral goals have long been educational objectives, but the significance of defining all learning as behavior change, the learning of new responses, has not yet had its full impact upon educational practices. The most careful studies of behavior change were evaluations of psychotherapy, which provided many indications of the kind of evaluation necessary to assess behavior change in educational settings.

The stimulus-response formula in learning studies led to a search for the elements of classroom interaction which elicit desired pupil responses (99). What pupil responses can be predicted from what teacher behaviors? The intermediary processes which go on between the measurable stimuli (teacher behavior) and obtained response (pupil behavior) are inferred. Motivation, a primary focus in many educational studies in the past, is such an inferred process, and is now questioned as a useful explanatory construct (153). Search for hierarchies of precipitating stimuli, antecedent-consequent relationships, replaced a search for "motives." One of the most provocative discussions of motivation was that of the 1957 Nebraska Symposium on Motivation (75).

As research in psychology moves its focus from rats to human affairs, educators will want to watch developments for applications to curriculums. As Stephens (137) points out: "A current broad attempt to make psychology more useful for education may by-pass educational psychology to some extent." Each educator will want to keep abreast of emerging trends in the basic research into man's behavior.

Conclusion

In a complex society, it is extremely difficult to identify the forces influencing curriculum development. It is even more difficult to trace the

processes through which cultural influences are transmitted into curriculum practices and to relate any specific practice to a societal force or condition. Nonetheless, we know that the values, beliefs, and aspirations of a people do, indeed, find their way into the subjects, topics, and materials studied by learners in educational institutions. One need only examine, at intervals, the courses of studies prepared for use in public-school systems to realize the truth of this last statement.

This chapter reveals a paucity of studies clearly showing the forces now influencing education, the channels through which influences find their way into the schools, and the impact of given beliefs or bodies of knowledge on curriculum practices. The reviewer is forced to sift through a miscellaneous array of studies, theories, and opinions in search of material that appears relevant to the kinds of curriculum decisions that are being made, or should be made. In the process, he is forced to construct both his own theories of curriculums and his own criteria for selecting and interpreting writings that appear to him pertinent to these theories. Consequently, it is improbable that any two persons preparing a chapter such as this would come up with similar sets of references or comparable interpretations. No doubt this lamentable condition will continue until more rigorous conceptual schemes for identifying curriculum questions and data appropriate to their solution are available.

Bibliography

1. ACKERMAN, NATHAN W. *The Psychodynamics of Family Life: Diagnosis and Treatment of Family Relationships*. New York: Basic Books, 1958. 379 p.
2. ALLPORT, GORDON W. "What Units Shall We Employ?" *Assessment of Human Motives*. (Edited by Gardner Lindzey.) New York: Rinehart and Co., 1958. Chapter 9, p. 239-60.
3. AMMOUN, CHARLES D. *Study of Discrimination in Education*. Commission on Human Rights, Sub-commission on Prevention of Discrimination and Protection of Minorities. New York: United Nations, 1957. 182 p.
4. ASHBY, SIR ERIC. "Lectures and Meetings: Technological Humanism." *Impact of Science on Society* 9: 45-58; No. 1, 1958.
5. BAILYN, LEOTTE. *Mass Media and Children: A Study of Exposure Habits and Cognitive Effects*. Psychological Monographs Vol. 73, No. 1. Whole No. 471. Washington, D.C.: American Psychological Association, 1959. 48 p.
6. BANDURA, ALBERT, and WALTERS, R. H. *Adolescent Aggression*. New York: Ronald Press, 1959. 475 p.
7. BARNES, SIR GEORGE. "Quality or Quantity?" *Bulletin of the Atomic Scientists* 14: 380-84; November 1958.
8. BARRON, FRANK. "The Psychology of Imagination." *Scientific American* 199: 150-66; September 1958.
9. BARTLETT, FREDERIC C. *Thinking: An Experimental and Social Study*. New York: Basic Books, 1958. 203 p.
10. BATESON, GREGORY, and OTHERS. "Toward a Theory of Schizophrenia." *Behavioral Science* 1: 251-64; October 1956.
11. *Biological Abstracts*, monthly, University of Pennsylvania, Philadelphia, Pennsylvania.
12. BLAISDELL, DONALD C., editor. "Unofficial Government: Pressure Groups and Lobbies." *Annals of the American Academy of Political and Social Science* 319: 1-157; September 1958.

13. BLAKE, ROBERT R., editor. *Group Training Versus Group Therapy*. Sociometry Monograph No. 35. New York: Beacon Press, 1958. 80 p.
14. BLAKE, ROBERT R., and MOUTON, JANE S. "Personality." *Annual Review of Psychology*. (Edited by Paul R. Farnsworth and Quinn McNemar.) Palo Alto, Calif.: Annual Reviews, 1959. Vol. 10, p. 203-32.
15. BLOCK, JACK. "The Assessment of Communication: Role Variations as a Function of Interactional Context." *Journal of Personality* 21: 272-86; December 1952.
16. BLOCK, JACK, and BENNETT, LILLIAN. "The Assessment of Communication: Perception and Transmission as a Function of the Social Situation." *Human Relations* 8: 317-25; No. 3, 1955.
17. BOGUT, THOMAS L. "A Comparison of Achievement in Arithmetic in England, California, and St. Paul." *Arithmetic Teacher* 6: 87-94; March 1959.
18. BOND, HORACE M. *The Search for Talent*. Cambridge, Mass.: Harvard University Press, 1959. 57 p.
19. BRIM, ORVILLE G., JR. *Education for Child Rearing*. New York: Russell Sage Foundation, 1959. 362 p.
20. BROADBENT, DONALD E. *Perception and Communication*. New York: Pergamon Press, 1958. 338 p.
21. BRODEY, WARREN M. "Some Family Operations and Schizophrenia." *Archives of General Psychiatry* 1: 379-402; October 1959.
22. BRONFENBRENNER, URIE. "Socialization and Social Class Through Time and Space." *Readings in Social Psychology*. (Edited by Eleanor Maccoby, Theodore Newcomb, and Eugene Hartley.) New York: Henry Holt and Co., 1958. Chapter 9, p. 400-23.
23. BRONOWSKI, J. "The Real Responsibilities of the Scientist." *Bulletin of the Atomic Scientists* 12: 10-11; January 1956.
24. BRUNER, JEROME, and OTHERS. *Contemporary Approaches to Cognition*. Cambridge, Mass.: Harvard University Press, 1957. 210 p.
25. BUERKLE, JACK V., and BADGLEY, ROBIN F. "Couple Role-Taking: The Yale Marital Interaction Battery." *Marriage and Family Living* 21: 53-58; February 1959.
26. *Bulletin of the Atomic Scientists*, monthly, Educational Foundation for Nuclear Science, 5734 University, Chicago, Illinois.
27. BURCHINAL, LEE G. "Adolescent Role Deprivation and High School Age Marriage." *Marriage and Family Living* 21: 378-84; November 1959.
28. BURTON, WILLIAM H. "Power Politics and the Teacher." *The Teacher's Role in American Society*. Fourteenth Yearbook, John Dewey Society. New York: Harper and Brothers, 1957. Chapter 16, p. 216-31.
29. BUSWELL, GUY T. "A Comparison of Achievement in Arithmetic in England and Central California." *Arithmetic Teacher* 5: 1-9; February 1958.
30. CARLSON, MABEL B., and SULLENGER, T. EARL. "A Study of Certain Areas in Which High School Youths Desire Counseling." *Journal of Educational Sociology* 31: 179-82; January 1958.
31. CASSEL, RUSSELL N. "The Phoenix Youth Study Proposal for Delinquency Reduction." *Journal of Educational Sociology* 33: 67-72; October 1959.
32. CHANCE, ERIKA. *Families in Treatment*. New York: Basic Books, 1959. 234 p.
33. COLADARCI, ARTHUR P. "The Teacher as Hypothesis-Maker." *California Journal for Instructional Improvement* 2: 3-6; March 1959.
34. COLEMAN, JAMES S. "The Adolescent Subculture and Academic Achievement." *American Journal of Sociology* 55: 337-47; January 1960.
35. CONANT, JAMES B. *The American High School Today: A First Report to Interested Citizens*. New York: McGraw-Hill Book Co., 1959. 140 p.
36. COUNTS, GEORGE S. *The Challenge of Soviet Education*. New York: McGraw-Hill Book Co., 1957. 330 p.
37. CUMMING, ELAINE, and CUMMING, JOHN. *Closed Ranks: An Experiment in Mental Health Education*. Cambridge, Mass.: Harvard University Press, 1957. 192 p.
38. DAHLKE, OTTO H. *Values in Culture and Classroom: A Study in the Sociology of the School*. New York: Harper and Brothers, 1958. 572 p.
39. DAVIDON, WILLIAM C. "Contrasts in Education." *Bulletin of the Atomic Scientists* 14: 154-56; April 1958.

40. DEAM, CALVIN W. *Opinions of Virginia Schoolmen Concerning the Treatment of Controversial Issues*. Doctor's thesis. Bloomington: Indiana University, 1957. 312 p.
41. DODSON, DAN W., and LINDERS, MARGARET E. "School Desegregation and Action Programs." *Review of Educational Research* 29: 378-87; October 1959.
42. DREHER, ROBERT, and BEATTY, WALCOTT H. *An Experimental Study of College Instruction Using Broadcast Television*. San Francisco: Delores Press, 1958. 75 p.
43. DUBARLE, DANIEL. "The Scientist and His Responsibilities." *Bulletin of the Atomic Scientists* 12: 253-57; September 1956.
44. DUBRIDGE, LEE A. "Science—The Endless Adventure." *Bulletin of the Atomic Scientists* 13: 74-79; March 1957.
45. ETZIONI, AMITAI. "Authority Structure and Organizational Effectiveness." *Administrative Science Quarterly* 4: 43-67; June 1959.
46. FARBER, I. E.; HARLOW, HARRY F.; and WEST, LOUIS J. "Brainwashing, Conditioning, and D.D.D. (Debility, Dependency, and Dread)." *Sociometry* 20: 271-85; December 1957.
47. FIELDER, MARIE. *The School as a Social System: A Study of the Social Organization of a High School Senior Class*. Doctor's thesis. Chicago: University of Chicago, 1960. 230 p.
48. FOOTE, NELSON N., and COTTRELL, LEONARD S. *Identity and Interpersonal Competence: A New Direction in Family Research*. Chicago: University of Chicago Press, 1955. 305 p.
49. FORD FOUNDATION, and FUND FOR THE ADVANCEMENT OF EDUCATION. *Teaching by Television*. New York: the Foundation, 1959. 87 p.
50. FRANKLIN, ADELE, and OTHERS. "The Teacher's Role in Creativity: Symposium, 1958." *American Journal of Orthopsychiatry* 29: 266-97; April 1959.
51. FREEDMAN, MERVIN B. "Passage Through College." *Journal of Social Issues* 12: 13-38; No. 4, 1956.
52. FREEMAN, BILLY VAN. *Family and Family Life Changes and Their Implications for Elementary Education*. Doctor's thesis. Austin: University of Texas, 1959. 345 p. Abstract: *Dissertation Abstracts* 20: 1641; No. 5, 1959.
53. FRENCH, JOHN R. P., JR., and OTHERS. *How High School Boys and Girls Make Decisions: A Study of Moral Values*. Report by Human Resources Project. Ann Arbor: University of Michigan, 1958. 28 p. (Mimeo.)
54. GETZELS, JACOB W. "The Acquisition of Values in School and Society." *The High School in a New Era*. (Edited by Francis S. Chase and Harold A. Anderson.) Chicago: University of Chicago Press, 1958. p. 146-61.
55. GILCHRIST, ROBERT S. "Innovations in the High-School Curriculum." *The High School in a New Era*. (Edited by Francis S. Chase and Harold A. Anderson.) Chicago: University of Chicago Press, 1958. p. 197-213.
56. GILES, HERMANN H. *The Integrated Classroom*. New York: Basic Books, 1959. 338 p.
57. GORDON, C. WAYNE. *The Social System of the High School*. Glencoe, Ill.: Free Press, 1957. 184 p.
58. GROSS, NEAL. "The Sociology of Education." *Sociology Today*. (Edited by Robert K. Merton, Leonard Broom, and Leonard S. Cottrell, Jr.) New York: Basic Books, 1959. Chapter 5, p. 128-52.
59. GUILFORD, J. P. "The Structure of Intellect." *Psychological Bulletin* 53: 267-93; July 1956.
60. GUILFORD, J. P.; KETTNER, NORMAN W.; and CHRISTENSEN, PAUL R. "The Nature of the General Reasoning Factor." *Psychological Review* 63: 169-72; May 1956.
61. HADDOW, ALEXANDER. "The Scientist as Citizen." *Bulletin of the Atomic Scientists* 12: 247-52; September 1956.
62. HALL, HAROLD D. *Relationships of Selected Characteristics of Organization to Practices in School Systems: Diffusion of Administrative Procedures*. Doctor's thesis. Urbana: University of Illinois, 1956. 134 p. Abstract: *Dissertation Abstracts* 16: 1623-24; No. 9, 1956.
63. HAND, HAROLD C. "Black Horses Eat More Than White Horses." *American Association of University Professors Bulletin* 43: 266-79; June 1957.

64. HAND, HAROLD C. "On the Anatomy of Myths." *Bulletin of the National Association of Secondary-School Principals* 42: 93-96; March 1958.
65. HESS, ROBERT D. "The Adolescent: His Society." *Review of Educational Research* 30: 5-12; February 1960.
66. HIMMELWEIT, HILDE T., and OTHERS. *Television and the Child: An Empirical Study of the Effect of Television on the Young*. New York: Oxford University Press, 1958. 522 p.
67. HOFSTAD, LAWRENCE R. "Science, Technology, and Society." *American Scientist* 45: 157-68; March 1957.
68. HUDSON, JOHN WILLIAM. *A Content Analysis of Selected Family Life Education Textbooks Used at the Secondary Level*. Doctor's thesis. Columbus: Ohio State University, 1956. 133 p. Abstract: *Dissertation Abstracts* 17: 1621-22; No. 7, 1957.
69. HURLBURT, ALLAN S. "Pitt County Families Go to School." *High School Journal* 41: 137-40; January 1958.
70. HYMAN, HERBERT H. "Value Systems of Different Social Classes: A Social Psychological Contribution to the Analysis of Stratification." *Class, Status and Power: A Reader in Social Stratification*. (Edited by Reinhard Bendix and Seymour N. Lipset.) Glencoe, Ill.: Free Press, 1953. Chapter 4, p. 426-42.
71. *Impact of Science on Society*, quarterly, United Nations Educational, Scientific and Cultural Organization, Paris, France.
72. JACOB, PHILIP E. *Changing Values in College: An Exploratory Study of the Impact of College Teaching*. New York: Harper and Brothers, 1957. 174 p.
73. JAHODA, MARIE. *Current Concepts of Positive Mental Health*. New York: Basic Books, 1958. 136 p.
74. JOHNSTONE, JOHN W. C. "High School Social Structure and Its Consequence for the Student." *Abstracts of Papers Delivered at the Fifty-Fourth Annual Meeting of the American Sociological Society, September 3, 4, 5, 1959*. New York: the Society, 1959. p. 20.
75. JONES, MARSHALL R. *Nebraska Symposium on Motivation*. Lincoln: University of Nebraska Press, 1957. 430 p.
76. JONES, MAXWELL. "The Concept of a Therapeutic Community." *American Journal of Psychiatry* 112: 647-50; February 1956.
77. JONES, ORVILLE E. *Activities of the American Legion in Textbook Analysis and Criticism 1938-1951*. Doctor's thesis. Norman: University of Oklahoma, 1957. 184 p. Abstract: *Dissertation Abstracts* 17: 2908; No. 12, 1957.
78. JOURNAL OF HOME ECONOMICS. "The 1960 Census and the Nation's Families." *Journal of Home Economics* 52: 13-15; January 1960.
79. KATZ, DANIEL; MCCLINTOCK, CHARLES; and SARNOFF, IRVING. "The Measurement of Ego Defense as Related to Attitude Change." *Journal of Personality* 25: 465-74; June 1957.
80. KENKEL, WILLIAM F. "A Survey of Family Life Education in Iowa High Schools." *Marriage and Family Living* 19: 379-81; November 1957.
81. KAPMAN, JACOB W. *Group Psychotherapy: Theory and Practice*. Second edition. New York: Grune and Stratton, 1959. 301 p.
82. KOHN, MELVIN L. "Social Class and the Exercise of Parental Authority." *American Sociological Review* 24: 352-66; June 1959.
83. KOONTZ, AMOS R. "The Humanities in Medicine." *Journal of the American Medical Association* 170: 72-73; May 1959.
84. KOBOL, ALEXANDER G. *Soviet Education for Science and Technology*. Cambridge: Technology Press of Massachusetts Institute of Technology, 1957. 513 p.
85. KRAMER, KLAAS. *A Comparison of Objectives, Methods, and Achievement in Arithmetic in the United States and in the Netherlands*. Doctor's thesis. Iowa City: State University of Iowa, 1957. 383 p. Abstract: *Dissertation Abstracts* 17: 2881; No. 12, 1957.
86. KRUMBOLTZ, JOHN D., and FARQUHAR, WILLIAM W. *The Effect of Three Teaching Methods on Achievement and Motivational Outcomes in a How-to-Study Course*. Psychological Monographs, Vol. 71, No. 14. Whole No. 443. Washington, D.C.: American Psychological Association, 1957. 26 p.
87. KVARACEUS, WILLIAM C. "What Kind of Help for the Delinquent?" *NEA Journal* 48: 12-15; February 1959.

88. KVARACEUS, WILLIAM C., and OTHERS. *Delinquent Behavior: Principles and Practices*. Washington, D.C.: Juvenile Delinquency Project, National Education Association, 1959. 350 p.
89. LANDIS, JUDSON T. "The Teaching of Marriage and Family Courses in Colleges." *Marriage and Family Living* 21: 36-40; February 1959.
90. LAZARSFELD, PAUL F., and THIELENS, WAGNER. *The Academic Mind: Social Scientists in a Time of Crisis*. Glencoe, Ill.: Free Press, 1958. 460 p.
91. LEIGHTON, ALEXANDER H.; CLAUSEN, JOHN A.; and WILSON, ROBERT N. *Explorations in Social Psychiatry*. New York: Basic Books, 1957. 452 p.
92. LEVIN, SAMUEL M. "John Dewey's Evaluation of Technology." *American Journal of Economics and Sociology* 15: 123-36; January 1956.
93. LINDEMANN, ERICH. "The Meaning of Crisis in Individual and Family Living." *Teachers College Record* 57: 310-15; February 1956.
94. LINDZEY, GARDNER, editor. *Handbook of Social Psychology*. Cambridge, Mass.: Addison-Wesley Publishing Co., 1954. Vol. 1, 588 p. Vol. 2, 625 p.
95. LONSDALE, DAME KATHLEEN. "Scientists and the People." *Bulletin of the Atomic Scientists* 14: 242-45; September 1958.
96. LOOMIS, MARY JANE. *The Preadolescent: Three Major Concerns*. New York: Appleton-Century-Crofts, 1959. 310 p.
97. LYNN, R. "The Relations Between Educational Achievement and School Size." *British Journal of Sociology* 10: 129-36; June 1959.
98. MCCORD, WILLIAM, and MCCORD, JOAN. *Origins of Crime: A New Evaluation of the Cambridge-Somerville Youth Study*. New York: Columbia University Press, 1959. 219 p.
99. McDONALD, FREDERICK J. *Educational Psychology*. San Francisco: Wadsworth Publishing Co., 1959. 748 p.
100. MARRIAGE AND FAMILY LIVING. "Adolescent Boys Speak Up." *Marriage and Family Living* 21: 74; February 1959.
101. MARSEILLE, WALTER W. "Not War, Not Peace." *Bulletin of the Atomic Scientists* 14: 140-43; April 1958.
102. MARTIN, DAVID WARD. *American Education as Seen in Periodical Literature, 1956-1958*. Doctor's thesis. Columbus: Ohio State University, 1959. 360 p. Abstract: *Dissertation Abstracts* 20: 2102-103; No. 6, 1959.
103. MARTINSON, FLOYD M. "Ego Deficiency as a Factor in Marriage—A Male Sample." *Marriage and Family Living* 21: 48-52; February 1959.
104. MARTINSON, FLOYD M. *Marriage and the American Ideal*. New York: Dodd, Mead and Co., 1960. 491 p.
105. MEYERHOFF, HOWARD A. "The Plight of Science Education." *Bulletin of the Atomic Scientists* 12: 333-37; November 1956.
106. MICHAEL, LLOYD S. "Innovations in the Organization of the High School." *The High School in a New Era*. (Edited by Francis S. Chase and Harold A. Anderson.) Chicago: University of Chicago Press, 1958. p. 225-39.
107. MILLER, DANIEL R., and SWANSON, GUY E. *The Changing American Parent: A Study in the Detroit Area*. New York: John Wiley and Sons, 1958. 302 p.
108. MINER, JOHN B. *Intelligence in the United States*. New York: Springer Publishing Co., 1957. 180 p.
109. MOORE, BERNICE M. *Juvenile Delinquency: Research, Theory, and Comment*. Washington, D.C.: Association of Supervision and Curriculum Development, a department of the National Education Association, 1958. 68 p.
110. MORPHET, EDGAR L. "Who Should Solve School Problems?" *Nation's Schools* 63: 67-68; April 1959.
111. MOSS, J. JOEL, and GINGLES, RUBY. "The Relationship of Personality to the Incidence of Early Marriage." *Marriage and Family Living* 21: 373-77; November 1959.
112. NATIONAL MANPOWER COUNCIL. *Work in the Lives of Married Women: Proceedings of a Conference on Woman Power*. New York: Columbia University Press, 1958. 220 p.
113. NYE, F. IVAN. "Employment Status of Mothers and Adjustment of Adolescent Children." *Marriage and Family Living* 21: 240-44; August 1959.
114. OJEMANN, RALPH H., and OTHERS. "The Effects of a Causal Teacher-Training Program and Certain Curricular Changes on Grade School Children." *Journal of Experimental Education* 24: 95-114; December 1955.

115. OPPENHEIMER, J. ROBERT. "Science and Our Times." *Bulletin of the Atomic Scientists* 12: 235-37; September 1956.
116. OSGOOD, CHARLES E.; SUCI, GEORGE J.; and TANNENBAUM, PERCY H. *The Measurement of Meaning*. Urbana: University of Illinois Press, 1957. 342 p.
117. PACKARD, VANCE O. *The Status Seekers*. New York: David McKay Co., 1959. 376 p.
118. PARKINSON, CYRIL NORTHCOTE. *Parkinson's Law, and Other Studies in Administration*. Boston: Houghton Mifflin Co., 1957. 112 p.
119. PARSONS, TALCOTT. "The School Class as a Social System: Some of Its Functions in American Society." *Harvard Educational Review* 29: 297-318; Fall 1959.
120. PEARLIN, LEONARD I. "Social and Personal Stress and Escape Television Viewing." *Public Opinion Quarterly* 23: 255-59; Summer 1959.
121. RABINOWITCH, EUGENE. "History's Challenge to Scientists." *Bulletin of the Atomic Scientists* 12: 238-40; September 1956.
122. RABINOWITCH, EUGENE. "Science and Education." *Bulletin of the Atomic Scientists* 14: 345; November 1958.
123. RIESMAN, DAVID. "Abundance For What?" *Bulletin of the Atomic Scientists* 14: 135-39; April 1958.
124. RUSSELL, BERTRAND. "An Answer to Mr. Marseille." *Bulletin of the Atomic Scientists* 14: 144-46; April 1958.
125. RUSSELL, BERTRAND; BEVERIDGE, LORD WILLIAM HENRY; and TOPCHIEV, A. V. "World Conference of Scientists." *Bulletin of the Atomic Scientists* 12: 41-45; February 1956.
126. SARGENT, STEPHEN STANSFELD, and WILLIAMSON, ROBERT C. *Social Psychology: An Introduction to the Study of Human Relations*. New York: Ronald Press, 1958. 649 p.
127. SCHWAB, JOSEPH J. "The Teaching of Science as Inquiry." *Bulletin of the Atomic Scientists* 14: 374-79; November 1958.
128. *Science*, weekly, American Association for the Advancement of Science, Washington, D.C.
129. SEARS, ROBERT RICHARDSON, and OTHERS. *Patterns of Child Rearing*. Evanston, Ill.: Row, Peterson and Co., 1957. 549 p.
130. SEXTON, PATRICIA CAYO. "Social Class and Pupil Turn-Over Rates." *Journal of Educational Sociology* 33: 131-34; November 1959.
131. SIEGEL, ALBERTA ENGVALL, and OTHERS. "Dependence and Independence in the Children of Working Mothers." *Child Development* 30: 533-46; December 1959.
132. SKAFFE, ROBERT A. "Neo-Conservatives Are on the March with 'Sound Education' as Battle Cry." *Nation's Schools* 59: 54-56; May 1957.
133. SMITH, BREWSTER. "Research Strategies Toward a Conception of Positive Mental Health." *American Psychologist* 14: 673-81; November 1959.
134. SMITH, ROBERT, and ROBINSON, JOHN. *Toward Better Guidelines for Teacher Education*. Report of the Fifth Annual Teacher Education Workshop. Sacramento: California State Department of Education, 1959. 32 p. (Mimeo.)
135. SMUTS, ROBERT W. *Women and Work in America*. New York: Columbia University Press, 1959. 180 p.
136. SPINDLER, GEORGE D. *The Transmission of American Culture*. Cambridge, Mass.: Harvard University Press, 1959. 51 p.
137. STEPHENS, J. M. "Educational Psychology." *Annual Review of Psychology*. (Edited by Paul R. Farnsworth and Quinn McNemar.) Palo Alto, Calif.: Annual Reviews, 1959. Vol. 10, p. 109-30.
138. SUCHMAN, EDWARD A.; DEAN, JOHN P.; and WILLIAMS, ROBIN M. *Desegregation: Some Propositions and Research Suggestions*. New York: Anti-Defamation League of B'nai B'rith, 1958. 128 p.
139. TAGIURI, RENATO, and PETRULLO, LUIGI, editors. *Personal Perception and Interpersonal Behavior*. Stanford, Calif.: Stanford University Press, 1958. 390 p.
140. TATON, RENE. "Teaching the History of Science." *Impact of Science on Society* 9: 137-49; No. 3, 1959.
141. TAYLOR, HAROLD. "The Intellectual in Action." *Bulletin of the Atomic Scientists* 14: 368-73; November 1958.
142. TERRIEN, FREDERIC W. "Too Much Room at the Top." *Social Forces* 37: 298-305; May 1959.

143. THALMAN, WELLINGTON A. "The Child Guidance Clinic: A Mental Health Service Agency and an Aid to Teacher Education." *Journal of Educational Sociology* 31: 111-16; November 1957.
144. THIBAUT, JOHN W., and KELLEY, HAROLD H. *The Social Psychology of Groups*. New York: John Wiley and Sons, 1959. 313 p.
145. THIRRING, HANS. "Education for the Age of Science." *Bulletin of the Atomic Scientists* 15: 293-97; September 1959.
146. THOMAS, EDWIN J. "Role Conceptions and Organizational Size." *American Sociological Review* 24: 30-37; February 1959.
147. TRACY, NEAL H. "A Comparison of Test Results: North Carolina, California and England." *Arithmetic Teacher* 6: 199-202; October 1959.
148. TROW, WILLIAM CLARK. "Basic Education: Facts and Fallacies." *School and Society* 85: 86-88; March 1957.
149. TUMIN, MELVIN M., and OTHERS. *Desegregation: Resistance and Readiness*. Princeton, N.J.: Princeton University Press, 1958. 270 p.
150. VINCENT, JACK DONALD. *Specific Areas of Congressional Legislation Relating to Elementary and Secondary Education*. Doctor's thesis. Nashville: George Peabody College for Teachers, 1958. 203 p.
151. WEAVER, WARREN. "Science and the Citizen." *Bulletin of the Atomic Scientists* 13: 361-65; December 1957.
152. WEY, HERBERT, and COREY, JOHN. *Action Patterns in School Desegregation: A Guidebook*. Bloomington, Ind.: Phi Delta Kappa, 1959. 276 p.
153. WHITE, ROBERT W. "Motivation Reconsidered: The Concept of Competence." *Psychological Review* 66: 297-333; September 1959.
154. WHYTE, WILLIAM H. *The Organization Man*. New York: Simon and Schuster, 1956. 429 p.
155. WILSON, ALAN B. "Residential Segregation of Social Classes and Aspirations of High School Boys." *American Sociological Review* 24: 836-45; December 1959.
156. WINCH, ROBERT F. *Mate-Selection: A Study of Complementary Needs*. New York: Harper and Brothers, 1958. 349 p.
157. ZALEZNIK, ABRAHAM; CHRISTENSEN, C. R.; and ROETHLISBERGER, F. J. *The Motivation, Productivity, and Satisfaction of Workers: A Prediction Study*. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1958. 442 p.

CHAPTER III

Components of the Curriculum

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THIS CHAPTER attempts to identify four components of the curriculum: (a) objectives, including both behavioral and content components; (b) types and quality of opportunities for learning, including organizing centers for learning; (c) organizing threads and patterns of organization; and (d) evaluation procedures. Careful consideration also has been given to the extent to which studies have turned to promising sources of data. The studies reported are confined to curriculum development up to the point of classroom instruction. The implementation of curriculum components in the classroom is the subject matter of Chapter IV. This chapter is organized in terms of decisions in (a) content areas encompassing all levels of education, (b) elementary education, (c) secondary education, and (d) higher education. Criteria for assessing decision-making processes and needed research are reported at the close of the chapter.

Increased interest and activity in curriculum problems, particularly with regard to content, characterized the years 1957-59. Contributions of large-scale group undertakings to a marked acceleration of demonstrations and studies are illustrated by the annual reports of the Carnegie Corporation (14), the Ford Foundation (33), and the Kellogg Foundation (57); summaries of projects supported by the U. S. Office of Education (93); and the yearbooks and journals of national professional organizations such as the Association for Supervision and Curriculum Development.

In the absence of an adequate conceptual system to guide curriculum decision-making, the literature still relies heavily upon the opinions of competent educators and informed citizens. An attempt has been made to report such studies as are available in addition to selected writings which, though they may not satisfy the criteria of rigorous research, nevertheless accurately reflect the state of the field.

Curriculum Decisions in Selected Content Areas Encompassing All Levels of Education

The rapid increase of knowledge, the scientific achievements of competitor nations, international tensions, and considerable shifting of opinion concerning the superiority of education in American schools contributed to an acceleration of experimentation in reorganizing content areas. Many

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undertakings along these lines had their beginnings in pre-Sputnik days (2, 5, 7, 63, 73). A number of questions concerning content and quality of learning experiences came to the fore. Subject-matter specialists assisted with curriculum revision through analysis of primary sources for basic concepts (6, 44, 63). Several areas were viewed in an international perspective (29, 43, 74).

Large-Group Undertakings

Large-scale demonstration projects were developed, especially in science (44, 63), mathematics (6, 56, 75), and foreign languages (66, 52). The National Defense Education Act of 1958, an expression of national concern for curriculum improvement in these areas, gave impetus to related study. Large-group undertakings usually involved representatives from colleges, universities, and communities, specialists in education, and classroom teachers. Team planning by such groups made possible the designing of larger and more comprehensive research and experimental undertakings than researchers working individually have been able to develop. Substantial grants from various foundations supported many of the studies (44, 58, 63, 86).

The projects cited have several common characteristics: (a) identification of basic concepts and generalizations involved in new theories and knowledge; (b) development of instructional materials to bring new knowledge and ideas into the curriculum; (c) production of instructional materials for the various grade levels from kindergarten through grade 12, and production of materials for teachers; (d) plans for teacher orientation and training in the use of new materials; (e) experimentation and evaluation in selected schools.

Mathematics

Efforts to improve the content of school mathematics courses and instruction in them were widespread. Commissions, committees, and work groups were organized at the national level (71, 73, 74), the state level (2, 50, 95, 96), and around centers such as the ones at Yale University (9), the University of Maryland (55, 56), and the University of Illinois (6, 7, 75). Working groups, especially those at university centers, generally included college and university mathematicians, high-school and elementary-grade teachers, experts in education, representatives of science and technology, and sometimes social scientists and psychologists. Some university centers were directly involved in state programs.

Normative and action research characterized the work of these mathematics groups. The major undertakings included: (a) analysis of modern theories and ideas for identification of basic concepts appropriate for

teaching in the schools; (b) production of new teaching materials; (c) testing of experimental units in the schools; (d) preparation of expository monographs; and (e) production of instructional materials for use in teacher education (7, 9, 55, 56, 75).

Several of the university committees have developed institutes, workshops, and training sessions for teachers and for writing groups as means of expediting the proposed new mathematics curriculum. Pilot schools were used to test new instructional ideas and materials.

Physical Sciences

The Physical Science Study Committee—formed at Massachusetts Institute of Technology in 1956 and including college, university, and industrial physicists, high-school physics teachers, and school and college educators—laid the foundation for a new course in high-school physics. The project aimed to develop a syllabus, a textbook, laboratory apparatus, manuals, teaching films, guides for teachers, and a series of books for supplementary reading. Experimental use of the course in selected high schools, orientation and training of teachers, and evaluation and modification of materials were a part of the operation (30, 31, 32, 63).

Biological Sciences

The Biological Sciences Curriculum Study was established in 1958 by the American Institute of Biological Sciences. A set of recommendations for education from kindergarten through graduate and professional schools is expected to be an outcome of the study. The study members "visualized from the first that such a study necessarily must involve not only the content of the courses, but the entire teaching-learning process at all stages" (44). Attention was given to effective use of mass communications media. The steering committee included professors of biology, high-school biology teachers, science co-ordinators, science educators, personnel of state departments of education, medical and agricultural educators, and university administrators. The major committees dealt with curriculum content, innovations in laboratory instruction, teacher preparation, gifted students, and publications (44, 45).

Social Studies

The National Council for the Social Studies, through its Committee on Concepts and Values, developed a bulletin (72) which defined the scope of the social studies curriculum from the kindergarten through grade 14. The Committee drew upon the thinking of scholars in the social sciences

and stated central principles and values of a free society in the form of 14 themes to guide selection of content. It would be necessary for local school systems to take into account the needs of their learners and communities in drawing implications from this document. In California, a State Central Committee on Social Studies engaged in a similar task, focusing on concepts from the social sciences and on criteria for the selection of content (13). The Committee also gave consideration to child growth and development, the learning process, and the placement and function of the social studies in the curriculum. Questions were also discussed which would assist local schools in developing their programs within the framework established by the California State Department of Education.

A group of doctoral dissertations at Stanford University, each dealing with one basic human activity (3, 27, 37, 76, 78, 80, 81, 88), attempted to identify generalizations that would aid content selection in the social studies. Primary data-sources were analyzed; recognized experts in the various disciplines were consulted. Generalizations were screened by a jury through a rigid set of criteria. Methodologically, an interesting feature of these studies was the fact that only generalizations unanimously approved were included in the findings.

Coordinated Education Center

In a noteworthy project (94) the University of Pittsburgh and the Pittsburgh Public School System established a Coordinated Education Center for research, experimentation, and demonstration throughout the several content areas and from elementary to graduate school. The Center's objective was to encourage action by schools, colleges, and universities to meet the challenges that face education. A unique feature of this project was the effort to articulate major units of the American educational system.

National Curriculum

Some of the large-scale studies tended to support the case for development of a national curriculum, a controversial issue that has emerged since the last reporting period. Hanna (46) proposed a national curriculum laboratory with a team of representative specialists and lay people to develop a comprehensive national design; he asserted that the greatest hope for national survival and for the perpetuation of American values lies in over-all planning and that he believed it possible to achieve national agreement on basic curriculum problems. Subsequently, a conference report (92) recommended that groups be established to define objectives, content, and organization of the public-school curriculum and that a national commission be set up "to deal with priorities and other over-riding curriculum matters."

The significant question raised by the national-curriculum issue was: "What kinds of curriculum decisions should be made at what levels of our political structure?" The projects under way in mathematics, the physical sciences, the biological sciences, and the social studies resulted in a movement toward similarity and standardization of programs. The extent to which local curriculum workers deal with proposals from national groups in terms of the uniqueness of their own learners and their own values and beliefs will determine the ultimate worth of the large-scale group efforts cited. A particularly useful document to assist in this assessment was Brackenbury's (11), in which he discussed the practicality and usefulness of philosophy in resolving curriculum issues.

Curriculum Decisions in Elementary Education

The years 1957-59 did not bring forth studies in general elementary education of comparable comprehensiveness and magnitude to those reported in the previous section. Several investigations cited above included the elementary school. There follow some studies in elementary education dealing with objectives, curriculum patterns, evaluation, and citizen interest in the school.

Objectives

Although objectives continued to be a primary concern in studies of elementary education, there appeared to be lack of agreement on basic references for determining them. Bridgers (12) found little research focused upon objectives but reported an investigation of the aims of public education as determined by the writings of eight curriculum authorities. The Estvans (28) reported the results of a long-term research project on children's social perception. They used a projective approach based on a life-situation picture series consisting of 14 scenes, each dealing with a basic social function. Their findings are a fundamental source of data for the formulation of elementary-school objectives. They concluded that the nature and development of social perception points to the need for both differentiation and synthesis in school programs, which must be viewed as a whole. Learning experiences of young children should be organized in short, relatively simple units that stress relationships between structure and function. Growth occurs as the child develops increased ability to make more detailed and analytical examination of closely related ideas, to place them in a space-and-time setting, and to integrate them with other bodies of knowledge.

Herrick (48), observing that objectives are generally stated in terms of the educated adult, of persistent problems of living, and of needs of

the child, asserted that the primary objective of public education is "to help children become increasingly competent to meet and deal with the problems of growing up to be constructive, participating members of our society." In an interesting and useful survey of public opinion about the tasks of the public school, Downey (24) ascertained that the regional sub-publics (which included both noneducators and educators in different types of communities) perceive the major function of the elementary school to be the teaching of the three R's.

Several factors seemed to demand re-examination of public-school objectives. Particularly relevant to primary-grade social studies was Crowder's dissertation (20), which showed that certain out-of-school experiences give young children insights that make emphasis on the near-at-hand an approach no longer valid. The influence of television, acquaintance with foreign visitors, and increased use of books in the home suggest the inclusion of content and experiences dealing with people out of the child's immediate environment.

Patterns of Organization

The development of the nongraded elementary school was a significant change in school organization during the period under review and one which has important implications for curriculum organization. Goodlad and Anderson (42) agreed that the removal of grades as the basis of organizational structure is an almost necessary condition for the full development of individual capacities. Their concept of grouping was suggested by study of how children learn skills and concepts. They demonstrated that success of the nongraded plan depends to a high degree upon the imagination used in grouping children for different kinds of learning. Many of the schools described were reported to have adopted a nongraded structure because of dissatisfaction with promotion policies, reporting practices, and other immediate concerns. The nongraded school supports the principle of longitudinal development of children and the search for organizing elements in the curriculum. The substance of the desired longitudinal view is a set of threads or organizing elements, of both behavior and content, running vertically through the curriculum, around which learning activities can be organized. The nongraded school yields a structure worthy of further study to determine methods of providing for continuous pupil progress along the organizing threads of the curriculum. Research needed in this area lies in the further study of these vertical arrangements, as well as in experimentation with horizontal curriculum organization.

Additional experimentation in curriculum organization included multi-grade teaching (49), a two-track plan combining graded and nongraded instruction (87), and an integrated kindergarten-primary program (59).

Evaluation

Evaluation of participation in experimental programs revealed (a) improved attitudes toward education, (b) increased attention to needs and interests of learners, (c) increased use of problem-solving rather than "tell-and-do" techniques, and (d) broader use of instructional materials (48). A group of doctoral dissertations at Wayne State University evaluated public-school programs. Galbraith (36) conducted a case study of a school in an industrial city, describing the impact of rapid social change and slum living upon children and their school, and showing how a more life-centered curriculum was developed which influenced the children's total living. Analysis was made of the use of the school group as a medium of change, of the role of leadership, and of the nature of co-operative action by school and community. Coxe's (19) case study of curriculum improvement in the social studies showed how faculty and administrators defined their problems and worked together to resolve them. The participants analyzed and appraised their school programs, observed the impact of the community on children and youth, and created ideas, materials, and processes to improve the social education of the students.

Snyder (84) appraised through interview, questionnaire, and school records the effectiveness of a developmental elementary-school program as revealed by opinions of children, parents, and teachers and by subsequent achievement in junior high school. A major conclusion of her study was that the block plan of school organization in both primary and middle grades, the parent-teacher-pupil conference, and active parent involvement in many phases of the school program are supporting forces to the positive reactions. Sniderman (83), through interviews, observation, and questionnaires, evaluated the long-range effects of a five-year, action-research curriculum project. He found that highly active teachers in the project demonstrated continued interest in experimentation, undertook additional formal course work, and exhibited more positive attitudes toward curriculum study than their less active colleagues.

These four studies exemplify the many evaluative appraisals of school programs appearing during the period of this report. Little research emerged which contributed to the development of the theory of evaluation or of new evaluation techniques.

Citizens Look at the Curriculum

A unique effort in public education was that of the Citizens Advisory Committee on School Needs in Detroit (21, 22). Established in February 1957, the Committee spent 18 months determining the city's school needs for the decade 1959-69. Two hundred and seventy citizens organized into committees. They collected data about all of the major aspects of

the public schools through interviews with school personnel, civic leaders, and school officials in other communities, through visits to schools, and through meetings with consultants. Of 181 recommendations to the board of education, several related to the curriculum. Among those approved by the board of education which related specifically to the elementary-school curriculum were recommendations for: (a) self-contained classrooms in grades 1 and 2, (b) a plan whereby a teacher stays with pupils for at least a year, (c) experimentation with placement of social studies and study of language arts in the homerooms of selected schools, (d) expansion of library facilities, (e) study of the effectiveness of auditorium programs, (f) improvement of guidance and counseling services, and (g) an increase in the visiting teacher service.

Research needed on the elementary-school curriculum includes experimental studies of where to teach what (content appropriate to the maturity level of the child), testing of proposals for reorganization, and experiments aimed to resolve such issues as foreign language teaching.

Curriculum Decisions in Secondary Education

Awareness of the inescapable responsibility of the school in a democracy to cultivate individual talents, coupled with a heightened concern for the national need for capable manpower, brought about several projects aimed at improving the secondary-school curriculum, mostly survey studies.

Objectives

In a companion study to an earlier survey of elementary-school objectives by Kearney (54), French and others (34) reported the findings of an extensive appraisal of expectations held for the public high school. Their report, which represented the co-operative endeavor of six national educational agencies, stated secondary-school objectives in universally useful language. Lingren (62) reported a comparative study of the degree to which the "Ten Imperative Needs of Youth" were being met in selected high schools in Pennsylvania.

General Secondary Curriculum Studies

Conant (17) made firsthand observations of 55 high schools in 18 states. His survey sought to determine the extent to which all students are provided for, whether through terminal education or preparatory education for college. The criteria used to evaluate the comprehensiveness of school programs were developed after preliminary visits and were re-

viewed by a group of experienced educators. Among the most important of Conant's 21 specific recommendations were recommendations for an improved counseling system, individualized programs, and general education for all students. Recommended general education includes four years of English, three to four years of social studies (two of history and one of American problems), one year of mathematics in the ninth grade, and at least one year of science in the ninth or tenth grade. Graduation requires completion of at least seven more courses, not including physical education. All students should be urged to elect art and music. Students should be grouped according to ability. Academically talented students should complete four years of mathematics, four years of foreign language, three years of science, and four years of social studies, a total of eighteen courses with homework. Conant's distinguished reputation and integrity gave his report great influence, even though such criteria for determining answers to fundamental curriculum questions as the nature of the learner and the learning process and the unique needs of particular communities were not accorded the consideration they probably deserve.

Several studies of the influence on curriculum of school organization were made; Trump (89) reported experimentation sponsored by the Commission on the Experimental Study of Utilization of the Staff in the Secondary School. Variance in class size, utilization of technological aids, and use of various combinations of both professional and nonprofessional personnel in instruction formed the basis of the experiments. Jurjevich (53) studied the teaching methods, the opportunities for learning experiences, and the outcomes of a three-year junior high-school core program; and he concluded that organizing learning experiences around broad problem areas results in academic and social achievement by students which is as good as, and in most instances better than, achievement in the more traditional organization.

Cornog (18) reported an experimental program associated with the title "School and College Admission with Advanced Standing." The program, initiated in 1951, was designed to revise the content and teaching in secondary schools to make more nearly adequate provision for the education of able youth. Revision was a result of the deliberations of 12 committees. The Committee on Individual Development directed its attention to the student himself; the other 11 dealt with subject matter. The experiment sought not simply to accelerate bright students but rather to provide a program that went beyond memorization. As evidence of acceptance of the program it was noted that 400 schools sent candidates to the May 1957 advanced placement examinations, and the program received endorsement by students, teachers, and parents.

Bissex (10) reported revision and extension of the Newton Plan, an effort to reorganize the curriculum for all subjects, grades 9 through 12. The plan involved experimenting with teaching large groups, giving teachers new roles in research and evaluation, and improving content.

The original phase was concerned with teaching traditional subjects in new ways. New content having the nature of general education offered types of knowledge, understanding, and appreciation usually not gained in regular classes. Exploratory evaluation of the program was provided by the Graduate School of Education of Harvard University after 1957. The evaluation procedure was carried on by researchers in residence who continuously appraised various aspects of the experiment and fed back information necessary to the program's growth. According to the report, outcomes in terms of learning by the students in the Newton Plan and by those in the more traditional program showed no essential differences.

Block-scheduling and core at the junior high-school level were described by Wright (98), who secured data from a survey of a 25-percent sample of 12,052 junior and junior-senior high schools in the United States. The major findings were that 19.3 percent of the sampled schools had block-time classes. This percentage increases to 31.4 percent if only junior high schools are considered; and within them the proportion increases inversely with the grade (94 percent in grade 7, 76 percent in grade 8, and 26 percent in grade 9). English and social studies were the subjects most frequently combined. In more than two-thirds of the schools, block-time classes had been introduced in 1950 or later. The report dealt at length with the procedures the responding schools used to develop core programs.

Jewett's (51) survey analyzed 285 courses of study from 44 states, the District of Columbia, the Canal Zone, and Hawaii. Showing changes which have occurred in the high-school English curriculum during the last quarter century, Jewett told how curriculum work was initiated, guidelines were observed, scope and sequence patterns were determined, provisions were made for individual differences, and promising practices in the language arts were suggested by courses of study. Among the significant changes he cited are: (a) inclusion of developmental reading instruction in many junior high schools, (b) heightened interest in world literature, (c) pupil guidance through speaking and writing, (d) emphasis on critical thinking, (e) determination of adequate scope and sequence, (f) articulation of all divisions of the school system from kindergarten through college, and (g) a concerted effort to instill appreciation of the privileges and obligations of living in a free, democratic society.

Content Areas in Secondary Education

The recommendations of several commissions and study groups reported earlier in this chapter, whose purpose was to establish content-organizing threads in selected subject areas from the kindergarten through grade 12, are expected to affect high-school programs. Several of these organized efforts were initiated at the secondary-school level. For example, the University of Maryland project (55) sought to determine the degree

of maturity required in students for certain mathematical concepts to be taught appropriately and to develop course materials for grades 7 and 8 consistent with their findings. The School Mathematics Study Group (9), which has shared instructional materials and personnel with the Maryland project, similarly advocated greater substance for seventh- and eighth-grade mathematics. Experimental units for these grades developed by the School Mathematics Study Group are being tested in approximately 100 classrooms. Other productions of the Group were materials for the self-improvement of teachers, textbooks for grades 9 through 12, and a series of mathematics monographs for students, teachers, and the educated lay public.

The University of Illinois Committee on School Mathematics (7, 75) sought to establish the unity of mathematics from the first grade through high school, introducing concepts now taught separately as arithmetic, algebra, geometry, trigonometry, and even calculus, appropriately, without regard to age or grade. The high-school program is presently in the developmental stage.

These and similar projects aimed to establish a balance among knowledges, skills, and values, with attention to continuity, sequence, and correlation. They should result in significant revisions of mathematics curriculums in public schools.

The initial emphasis of the Biological Sciences Curriculum Study reported by Grobman (45) was focused at the high-school level and sought to determine what knowledge of the life sciences a citizen should possess upon graduation from high school to understand his world. Land (60), appealing for establishment of functional biology in the secondary-school curriculum, considered fundamental physical principles and descriptions of chemical properties in tenth-grade general biology as keys to popular scientific appreciation, as well as to individual initiative.

The report of the Survey of Physiological Science presented by Gerard (38) emphasized the status and future of physiology as a basic aspect of biological science. The impact of physiology on the national welfare is emphasized along with recommendations for research and teaching. Stanley, Broudy, and Burnett (86) appraised science programs in Illinois secondary schools and made specific recommendations for improvement. The study, which relied upon the quantitative data available from records and from earlier and more definitive studies, dealt more with placement of the various disciplines by grade levels than with specific opportunities for learning.

The central objective of the Physical Science Study as reported by Little (63) was development of courses consistent with what physicists meet in practice. Basic assumptions were: (a) revision of subject matter should be made by practicing specialists; (b) high-school teachers can successfully teach subject matter beyond what they studied in college; and (c) high-school students will respond to intellectual presentation of

subject matter in which rational thought and analysis are more important than memory.

Dooley (23) reported a study involving the compilation and validation of geographic concepts for inclusion in curriculums, grades 1 through 12. A list of 218 concepts compiled from nationally used textbooks in geography and social studies and from randomly chosen curriculum guides was submitted to three juries made up of professors of geography and social studies and professional geographers; they rated them on accuracy, importance in general education, and learnability. The combined juries placed 49 percent of the concepts in grades 1 through 6 and 51 percent in grades 7 through 12.

Curriculum Decisions in Higher Education

The phenomena of foundation support and space-age insecurity gave rise to a number of curriculum demonstrations and studies in higher education. The buttressing of liberal arts subject matter in undergraduate and graduate programs, as well as in professional schools, underlay most curriculum decisions in higher education. Other purposes included (a) further clarification of the relationships between theory and practice in teacher education, (b) refinement and enhancement of professional programs, (c) advancement of interinstitutional co-operation, (d) extension of foreign travel and study, and (e) improvement in teaching methods and conservation of college teaching resources.

General Education

Centers or institutes of higher education were established at several institutions. Among them were: Teachers College, Columbia University; the University of California, Berkeley; University of Michigan; and Michigan State University. Reports from Columbia University (25, 65) raised provocative questions for curriculum decision-making. A survey of faculty attitudes and opinions in eight types of specialized schools brought forth the following issues: (a) the need to determine the best distribution of liberal arts courses through the four undergraduate years, (b) the need to clarify the concept of liberal education among faculties—and the lack of willingness to make contributions to this concept, and (c) the need to make explicit the broad purposes of liberal arts and to reorganize in terms of those purposes. A summary statement (65) called for a liberal arts curriculum for technical and professional students which is more than a direct contribution to specialized training.

Greater emphasis on liberal arts was reflected in undergraduate programs of general education, in graduate schools, and in colleges of education. The Ford Foundation (33) supported programs stressing liberal

arts in general education through curriculum innovations which included (a) combined subject courses in basic areas; (b) emphasis upon independent study, inquiry, and initiative; (c) improved utilization of resources through the use of teaching teams, co-operative teaching, and teaching machines; and (d) variations and flexibility in class sizes and scheduling of the college day, week, and year.

Wayne State University inaugurated its new Monteith College (68) designed to foster qualities of the wise citizen, the cultivated human being, and the competent and creative specialist. Though this program attempted to satisfy such criteria for curriculum decision-making as concern for organizing threads and the learning process, its emphasis on the Western World overlooked today's critical need for development of world-wide understanding.

The Carnegie Corporation of New York (14) supported programs to enlarge the role of liberal arts, among them (a) the degree of Doctor of Philosophy in liberal arts for students planning to be undergraduate teachers, (b) a series of courses designed to permit graduate students to sample fields of knowledge outside their own specialties, and (c) intensive exploration of single ideas or concepts in general education. Aside from the introduction of so-called discussion courses, the major emphasis was given to updating of program aims, especially those concerned with "considerations about contemporary society and the particular community for which the curriculum is planned."

The Fund for the Advancement of Education (35) reported 62 grants to 48 institutions to develop plans for more effective use of teaching resources. Independent study figured prominently among these programs. Allen (1) surveyed 170 economics education faculties who reported interested departures from traditional lecture methods.

Curriculum Study in the Professions

The largest grants from foundations went to teacher-preparation institutions. Program innovations in teacher education (33) included (a) paid internships, (b) near-obliteration of "methods courses," (c) use of teaching teams, (d) interinstitutional co-operation, and (e) reorganization of the content of education courses. Woodring's report (97) probably had as great an effect upon teacher education as Conant's report (17) had on the American high school. Woodring concluded that programs supported by the Fund for the Advancement of Education (a) created interest in problems of teacher education, (b) supplied teachers who would not otherwise have entered the profession, (c) surmounted barriers to changes in teacher education, and (d) brought together professional educators and liberal arts faculties.

Fifth-year internships have been an important and usually a preconceived condition of Ford programs, as indicated, for example, in Spaulding

and Krathwohl's (85) excellent but *ex post facto* evaluation of the Arkansas Experiment in Teacher Education. A prolonged internship involved three kinds of learning activities: (a) observation periods, (b) structured course work, and (c) evaluation seminars. Although the evaluation procedures were not systematic, they resulted in some observable program modifications.

While pressure increased for more liberal arts in teacher education, there was evidence that teachers colleges were doing about as well in this direction as liberal arts colleges. Andrews and Palmer (4), surveying 22 institutions in 19 states, observed that elementary-school teachers are required to complete courses of study similar to those in most liberal arts institutions. A parallel study by Cogan (15) of the requirements for secondary-school teachers brought forth similar findings.

Interesting curriculum experiments emerged from continued interest in the oldest of teacher-education problems—the relationship between theory and practice. Colvin (16) developed a series of direct experiences prior to student teaching, enabling student teachers to increase their readiness for supervised teaching. Direct experiences were explored to discover problems and formulate hypotheses to be tested. Dunham (26), using the Minnesota Teacher Attitude Inventory, determined that negative changes in attitude toward youth occur among student teachers during student teaching. Hansen (47) concluded from the results of an action research study of post-degree candidates for teacher certification that "direct experiences can be meaningfully related to theory if cooperative planning occurs." In a study of the timing of methods courses, Nagle (70), using his own tests, showed that integration of methods courses with a six-week period of full-time student teaching is more effective than part-time student teaching preceded by methods courses. Beckman (8) and Miller (67) reported the results of action research and group interaction in recognizing and solving teaching difficulties.

Refinement of graduate and professional programs took place in nursing education and medicine. Sand and Belcher (82) described the tasks and processes used to improve a curriculum in a collegiate school of nursing. Tschudin, Belcher, and Nedelsky (90) showed how faculty members of a school of nursing acquired skill in complex techniques of evaluation. Turner (91) reported a new medical curriculum at Johns Hopkins University which, through reconstitution of courses and rotating internships, resulted in an over-all timesaving of two years.

Studies and programs most significant to curriculum planners were those which fully explored a single curriculum component or showed clearly defined relationships between two or more components. Studies (82, 90) reported above cut across components and delved deeply into individual components. Three studies dealt in depth with data relating strongly to one curriculum component. Morris (69) showed the need for standardization of reporting of accreditation data among professional

teacher-education accrediting associations and their members. Powell (77), studying records of students admitted to college conditionally, found justification for providing educational opportunities for younger students with "borderline" credentials. Lloyd (64) conducted a study in depth of one post-degree certification program analyzing the learning experiences of the students. The study contributed several important hypotheses to be tested, and it implemented changes in other teacher-education programs.

In addition to these valuable sources of data and guides to curriculum planning in higher education, there were two important pronouncements upon the fixing of responsibility for curriculum improvement. Ruml and Morrison (79) showed that college trustees may legitimately concern themselves with more than the economic and financial material relating to curriculum. Issues considered of decisive interest to trustees were (a) remedial courses, (b) science offerings, (c) languages, and (d) a mechanism for determining curriculum design and administration acceptable to faculty, administration, and trustees. Lieberman (61), taking a different point of view, recommended that the choice of teaching methods and media, as well as the means of education, be left to one giant teacher organization. Lieberman's thesis was that local control of education has outlived its usefulness and that such control prevents enlightened decisions on policy, including curriculum policy.

Conclusion

Curriculum theory, though admittedly inadequate, has suggested sources of data to consider in making a wise choice of objectives and in determining appropriate means for their attainment. During these last three years there has been an apparent trend toward emphasis on the definition of the content aspects of objectives. Research and experimentation are needed to define the behavioral aspects of objectives and to show ways to take into account the uniqueness of individuals, communities, and educational institutions.

The heart of an educational program is the learning experiences of the students. What they do, what they think about, what they say and write, what they feel—these determine what they learn. Needed in curriculum theory are models that identify the various components of learning situations to which students may be expected to respond productively. A practical problem is that of bringing the various components of the curriculum together through the setting up of organizing centers for learning. Goodlad (40, 41) suggests three dimensions to be used in accomplishing this synthesis—learners, content, and organizing elements. The studies reported here reveal the need for more definitive research in curriculum organization.

The greatest effort needed is in the area of curriculum theory to "identify the major questions to be answered in developing any instructional program, to reveal the elements that tie these questions together in a system and the elements that separate questions from one another, to identify subordinate questions and classify them properly in relation to major questions, to reveal appropriate data-sources, and to suggest the relevance of data extracted from these sources" (39).

If the curriculum in American schools and colleges is to move from a melange of disaggregate parts, and if decision-making is to become scientific, major efforts in the decade ahead must focus on the formulation of a theoretical structure which will guide the design of meaningful research studies.

Bibliography

1. ALLEN, EDWARD J. "Program of the Joint Council on Economic Education: Economists and Educators Join Forces." *Journal of Higher Education* 30: 94-98; February 1959.
2. ALLERTON HOUSE CONFERENCE ON EDUCATION, STUDY GROUP ON MATHEMATICS. *The Teaching of Mathematics in Illinois*. Report. Urbana: University of Illinois, 1958. 44 p.
3. ANDREWS, CLAY S. *Social Science Generalizations for Use in the Social Studies Curriculum: Organizing and Governing*. Doctor's thesis. Stanford, Calif.: Stanford University, 1957. 165 p. Abstract: *Dissertation Abstracts* 17: 2464-65; No. 11, 1957.
4. ANDREWS, LEONARD O., and PALMER, R. R. "The Education of the Elementary School Teacher." *The Education of Teachers: New Perspectives*. Official Report of the Second Bowling Green Conference, Bowling Green State University, June 24-28, 1958. Washington, D.C.: National Commission on Teacher Education and Professional Standards, National Education Association, 1958. p. 322-29.
5. ASSOCIATION FOR SUPERVISION AND CURRICULUM DEVELOPMENT. *Research for Curriculum Improvement*. 1957 Yearbook. Washington, D.C.: the Association, a department of the National Education Association, 1957. 350 p.
6. BEBERMAN, MAX. *An Emerging Program of Secondary School Mathematics*. Cambridge, Mass.: Harvard University Press, 1958. 44 p.
7. BEBERMAN, MAX. "Improving High School Mathematics Teaching." *Educational Leadership* 17: 162-66, 188; December 1959.
8. BECKMAN, DAROLD R. "Student Teachers Learn by Action Research." *Journal of Teacher Education* 8: 369-75; December 1957.
9. BEGLE, EDWARD G. "School Mathematics Study Group." *Mathematics Teacher* 51: 616-18; December 1958.
10. BISSEX, HENRY S. "Second Stage: Revision and Extension of Newton Plan Studies." *Bulletin of the National Association of Secondary-School Principals* 43: 104-19; January 1959.
11. BRACKENBURY, ROBERT L. *Getting Down to Cases: A Problems Approach to Educational Philosophizing*. New York: G. P. Putnam's Sons, 1959. 222 p.
12. BRIDGERS, RAYMOND BRADLEY, JR. *The Purposes of American Public Education as Discerned in the Works of Selected Writers on Curriculum*. Doctor's thesis. Durham, N. C.: Duke University, 1958. 207 p. Abstract: *Dissertation Abstracts* 19: 1241-42; No. 6, 1958.
13. CALIFORNIA STATE DEPARTMENT OF EDUCATION. "Building Curriculum in Social Studies for the Public Schools of California." *Bulletin of the California State Department of Education* 26: 1-109; May 1957.
14. CARNEGIE CORPORATION OF NEW YORK. *Annual Report for the Fiscal Year Ended September 30, 1958*. New York: the Corporation, 1958. 105 p.

15. COGAN, MORRIS L. "Professional Requirements in Collegiate Programs for the Preparation of High School Teachers." *The Education of Teachers: New Perspectives*. Official Report of the Second Bowling Green Conference, Bowling Green State University, June 24-28, 1958. Washington, D. C.: National Commission on Teacher Education and Professional Standards, National Education Association, 1958. p. 317-21.
16. COLVIN, CYNTHIA M. *Achieving Readiness for Student Teaching Through Direct Experience*. Doctor's thesis. Detroit: Wayne State University, 1958. 375 p. Abstract: *Dissertation Abstracts* 19: 3229; No. 12, 1959.
17. CONANT, JAMES B. *The American High School Today: A First Report to Interested Citizens*. New York: McGraw-Hill Book Co., 1959. 140 p.
18. CORNOG, WILLIAM H. "Initiating an Educational Program for the Able Student in the Secondary School." *School Review* 65: 49-59; March 1957.
19. COXE, ROSS M. *A Suburban School System Faculty Looks at and Improves Its Program in Social Studies for Children and Youth*. Doctor's thesis. Detroit: Wayne State University, 1957. 223 p. Abstract: *Dissertation Abstracts* 18: 1728; No. 5, 1958.
20. CROWDER, WILLIAM W. *A Study of the Out-of-School Experiences of Selected Second Grade Children with Implications for Revision of the Social Studies Course of Study*. Doctor's thesis. Bloomington: Indiana University, 1958. 166 p. Abstract: *Dissertation Abstracts* 19: 2265-66; No. 9, 1958.
21. DETROIT CITY BOARD OF EDUCATION, CITIZENS ADVISORY COMMITTEE ON SCHOOL NEEDS. *Findings and Recommendations of the City-Wide Committee*. Detroit: the Board, November 1958. 364 p.
22. DETROIT CITY BOARD OF EDUCATION, CITIZENS ADVISORY COMMITTEE ON SCHOOL NEEDS. *One Year After*. Detroit: the Board, December 1959. 89 p.
23. DOOLEY, M. LOUISE HOLLAND. *A Compilation and Validation of Basic Geographic Concepts for Inclusion in School Curricula from Grades One to Twelve*. Doctor's thesis. Boston: Boston University School of Education, 1957. 212 p. Abstract: *Dissertation Abstracts* 17: 2243-44; No. 10, 1957.
24. DOWNEY, LAWRENCE WILLIAM. *The Task of the Public School as Perceived by Regional Sub-Publics*. Doctor's thesis. Chicago: University of Chicago, 1959. 243 p.
25. DRESSSEL, PAUL L.; MAYHEW, LEWIS B.; and McGRATH, EARL J. *The Liberal Arts as Viewed by Faculty Members in Professional Schools*. Publication of the Institute of Higher Education. New York: Bureau of Publications, Teachers College, Columbia University, 1959. 68 p.
26. DUNHAM, DARRELL R. "Attitudes of Student Teachers, College Supervisors and Supervising Teachers Toward Youth," *Studies in Professional Laboratory Experiences in Teacher Education*. Research Abstract Series, Research Bulletin No. 3. Cedar Falls, Iowa: Association for Student Teaching, 1959. p. 41-43.
27. EMMERSON, HAROLD G. *Social Science Generalizations for Use in the Social Studies Curriculum: Providing Recreation*. Doctor's thesis. Stanford, Calif.: Stanford University, 1957. 155 p. Abstract: *Dissertation Abstracts* 17: 2534; No. 11, 1957.
28. ESTVAN, FRANK J., and ESTVAN, ELIZABETH W. *The Child's World: His Social Perception*. New York: G. P. Putnam's Sons, 1959. 302 p.
29. FEHR, HOWARD F. "Mathematics Education of Youth: A Comparative Study." *Teachers College Record* 60: 179-90; January 1959.
30. FERRIS, FREDERICK L., JR. "Physical Science Study Committee: An Achievement Test Report." *Science Teacher* 26: 576-79; December 1959.
31. FINLAY, GILBERT C. "Physical Science Study Committee: A Status Report." *Science Teacher* 26: 574-76; December 1959.
32. FINLAY, GILBERT C. "Physical Science Study Committee: Summary of Judgments Made by Teachers." *Science Teacher* 26: 579-81; December 1959.
33. FORD FOUNDATION. *Annual Report October 1, 1958-September 30, 1959*. New York: the Foundation, 1959. 180 p.
34. FRENCH, WILLIAM, and OTHERS. *Behavioral Goals of General Education in High School*. New York: Russell Sage Foundation, 1957. 247 p.
35. FUND FOR THE ADVANCEMENT OF EDUCATION. *A Report for 1957-1959*. New York: the Fund, 1959. 113 p.

36. GALBRAITH, ANN TRIMBLE. *A Survey of a Changing School in an Area of Mobile Population*. Doctor's thesis. Detroit: Wayne State University, 1958. 157 p. Abstract: *Dissertation Abstracts* 19: 2825-26; No. 11, 1959.
37. GEER, OWEN CHAPMAN. *Social Science Generalizations for Use in the Social Studies Curriculum: Protecting and Conserving Human and Natural Resources*. Doctor's thesis. Stanford, Calif.: Stanford University, 1959. 190 p. Abstract: *Dissertation Abstracts* 19: 2877-78; No. 11, 1959.
38. GERARD, RALPH WALDO. *Mirror to Physiology; A Self-Survey of Physiological Science*. Washington, D.C.: American Physiological Society, 1958. 372 p.
39. GOODLAD, JOHN I. "The School Scene in Review." *School Review* 66: 391-401; December 1958.
40. GOODLAD, JOHN I. "The Teacher Selects, Plans, Organizes." *Learning and the Teacher*. 1959 Yearbook, Part II. Washington, D. C.: Association for Supervision and Curriculum Development, a department of the National Education Association, 1959. Chapter 3, p. 39-60.
41. GOODLAD, JOHN I. "Three Dimensions for Organizing the Curriculum for Learning and Teaching." *Frontiers of Elementary Education III*. Third Annual Conference on Elementary Education, Syracuse University, 1956. Syracuse, New York: Syracuse University Press, 1956. p. 11-22.
42. GOODLAD, JOHN I., and ANDERSON, ROBERT H. *The Nongraded Elementary School*. New York: Harcourt, Brace and Co., 1959. 248 p.
43. GRAY, WILLIAM S. *The Teaching of Reading: An International View*. Cambridge, Mass.: Harvard University Press, 1957. 30 p.
44. GROBMAN, ARNOLD B. "The Biological Sciences Curriculum Study." *A.I.B.S. Bulletin* 9: 21-23; April 1959. (Washington, D.C.: American Institute of Biological Sciences.)
45. GROBMAN, ARNOLD B. "Life Sciences in American Schools." *Educational Leadership* 17: 153-56; December 1959.
46. HANNA, PAUL R. "Design for a National Curriculum." *Nation's Schools* 62: 43-45; September 1958.
47. HANSEN, RALPH K. "Action Research in Teacher Education." *Journal of Teacher Education* 10: 417-21; December 1959.
48. HERRICK, VIRGIL E. "Elementary Education—Programs." *Encyclopedia of Educational Research*. Third edition. (Edited by Chester W. Harris.) New York: Macmillan Co., 1960. p. 430-42.
49. HULL, JOHN H. "Multigrade Teaching." *Nation's Schools* 62: 33-36; July 1958.
50. ILLINOIS DEPARTMENT OF PUBLIC INSTRUCTION. *Thinking in the Language of Mathematics, the Elementary School Level*. Bulletin No. C 2. Springfield: the Department, 1959. 152 p.
51. JEWETT, ARNO. *English Language Arts in American High Schools*. U. S. Department of Health, Education, and Welfare, Office of Education, Bulletin 1958, No. 13. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1959. 122 p.
52. JOHNSTON, M. C., editor. *Modern Foreign Languages in the High School; Proceedings of Conference, May 8-10, 1957*. U. S. Department of Health, Education, and Welfare, Office of Education, Bulletin 1958, No. 16. Washington, D.C.: Superintendent of Documents, Government Printing Office, 1958. 166 p.
53. JURJEVICH, JOSEPH C., JR. "Methods and Results in a Junior High Core Class." *Educational Leadership* 14: 483-87; May 1957.
54. KEARNEY, NOLAN C. *Elementary School Objectives; A Report Prepared for the Mid-Century Committee on Outcomes in Elementary Education*. New York: Russell Sage Foundation, 1953. 189 p.
55. KEEDY, MERVIN L. "Mathematics in Junior High School." *Educational Leadership* 17: 157-61; December 1959.
56. KEEDY, MERVIN L. "The University of Maryland Mathematics Project." *American Mathematical Monthly* 66: 58-59; January 1959.
57. KELLOGG FOUNDATION. *Report for 1959*. Battle Creek, Mich.: the Foundation, 1959. 174 p.
58. KELLY, HARRY C. "National Program for Education in the Sciences." *School Review* 67: 396-408; Winter 1959.

59. KLUWE, MARY JEAN UPSON. *An Investigation of the Effects of an Integrated Kindergarten-Primary Program*. Doctor's thesis. Detroit: Wayne State University, 1957. 285 p. Abstract: *Dissertation Abstracts* 19: 2028-29; No. 8, 1959.
60. LAND, WILLIAM G. "Don't Forget Biology." *Phi Delta Kappan* 39: 350-52; May 1958.
61. LIEBERMAN, MYRON. *The Future of Public Education*. Chicago: University of Chicago Press, 1960. 294 p.
62. LINGREN, VERNON C. "Ten Imperative Needs: A Progress Report." *Bulletin of the National Association of Secondary-School Principals* 41: 108-20; November 1957.
63. LITTLE, ELBERT P. "PSSC: A Physics Program." *Educational Leadership* 17: 167-69, 192; December 1959.
64. LLOYD, RICHARD EDWARD. *A Case Study in Teacher Education*. Doctor's thesis. Detroit: Wayne State University, 1958. 276 p. Abstract: *Dissertation Abstracts* 19: 2868-69; No. 11, 1959.
65. MCGRATH, EARL J., and RUSSELL, CHARLES H. *Are Liberal Arts Colleges Becoming Professional Schools?* Publication of the Institute of Higher Education. New York: Bureau of Publications, Teachers College, Columbia University, 1958. 26 p.
66. MEAD, ROBERT G., JR., editor. "The MLA Foreign Language Program; The Role of Foreign Languages in International Business and Industry." *Hispania* 40: 344-52, September; 469-77, December 1957.
67. MILLER, HENRY. "Values in Group Work as Described by Teacher Education Students." *Educational Administration and Supervision* 43: 149-56; March 1957.
68. MONTEITH COLLEGE. *Monteith College*. Detroit: Wayne State University, 1959. 20 p.
69. MORRIS, ALVIN E. *A Critical Analysis of Types of Quantitative Data Requested by the Professional Teacher Education Accrediting Agency and the Six Regional Accrediting Agencies*. Doctor's thesis. Detroit: Wayne State University, 1959. 299 p. Abstract: *Dissertation Abstracts* 19: 3236-37; No. 12, 1959.
70. NAGLE, L. MARSHALL. "A Comparison of Two Programs of Student Teaching with Relation to Professional Attitudes." *Studies in Professional Laboratory Experiences in Teacher Education*. Research Abstract Series, Research Bulletin No. 3. Cedar Falls, Iowa: Association for Student Teaching, 1959. p. 32-33.
71. NATIONAL ASSOCIATION OF SECONDARY-SCHOOL PRINCIPALS. "The Place of Science and Mathematics in the Comprehensive Secondary-School Program." *Bulletin of the National Association of Secondary-School Principals*. 42: 5-12; September 1958.
72. NATIONAL COUNCIL FOR THE SOCIAL STUDIES. *A Guide to Content in the Social Studies*. Report of the NCSS Committees on Concepts and Values. Washington, D. C.: the Council, a department of the National Education Association, 1959. 78 p.
73. NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS, ELEMENTARY-SCHOOL CURRICULUM COMMITTEE. "The Work of the Elementary-School Curriculum Committee." *Mathematics Teacher* 52: 310-11; April 1959.
74. NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS, SECONDARY-SCHOOL CURRICULUM COMMITTEE. "The Secondary Mathematics Curriculum." *Mathematics Teacher* 52: 389-417; May 1959.
75. PAGE, DAVID A. "The University of Illinois Arithmetic Project." *American Mathematical Monthly* 66: 419-22; May 1959.
76. PECK, ALBERT DANIEL. *Social Science Generalizations for Use in the Social Studies Curriculum: Expressing and Satisfying Esthetic Needs and Impulses*. Doctor's thesis. Stanford, Calif.: Stanford University, 1958. 180 p. Abstract: *Dissertation Abstracts* 19: 254-55; No. 2, 1958.
77. POWELL, HELEN ROMONA. *A Comparative Analysis of Two University Educational Programs for Non-Admissible Students Under Twenty Years of Age at Wayne State University*. Doctor's thesis. Detroit: Wayne State University, 1957. 160 p. Abstract: *Dissertation Abstracts* 19: 281; No. 2, 1958.
78. RAMBEAU, JOHN FRANKLIN. *Social Science Generalizations for Use in the Social Studies Curriculum: Transporting People and Goods*. Doctor's thesis. Stanford, Calif.: Stanford University, 1957. 191 p. Abstract: *Dissertation Abstracts* 17: 784; No. 4, 1957.

79. RUMML, BEARDSLEY, and MORRISON, DONALD H. *Memo to a College Trustee; A Report on Financial and Structural Problems of the Liberal College*. New York: McGraw-Hill Book Co., 1959. 94 p.
80. RUNGE, JAMES RICHARD. *Social Science Generalizations for Use in the Social Studies Curriculum: Producing, Exchanging, Distributing and Consuming Food, Clothing, Shelter, and Other Consumer Goods and Services*. Doctor's thesis. Stanford, Calif.: Stanford University, 1958. 220 p. Abstract: *Dissertation Abstracts* 19: 714; No. 4, 1958.
81. RUSTEIKA, GEORGE PETER. *Social Science Generalizations for Use in the Social Studies Curriculum: Communicating Facts, Ideas, and Feelings*. Doctor's thesis. Stanford, Calif.: Stanford University, 1958. 200 p. Abstract: *Dissertation Abstracts* 19: 744; No. 4, 1958.
82. SAND, OLE P., and BELCHER, HELEN C. *An Experience in Basic Nursing Education*. Basic Nursing Education, Curriculum Study Series, Vol. 3. New York: G. P. Putnam's Sons, 1958. 185 p.
83. SNIDERMAN, SAM M. *The Long Range Productivity of a Subsidized and Formally Organized Action Research Curriculum Study*. Doctor's thesis. Detroit: Wayne State University, 1957. 120 p. Abstract: *Dissertation Abstracts* 18: 1350-51; No. 4, 1958.
84. SNYDER, EDITH ROACH. *An Evaluative Study of a Developmental Elementary School Program*. Doctor's thesis. Detroit: Wayne State University, 1957. 153 p. Abstract: *Dissertation Abstracts* 17: 1261-62; No. 6, 1957.
85. SPAULDING, WILLARD B., and KRATHWOHL, DAVID R. *A Report of Evaluation of the Arkansas Experiment in Teacher Education*. Little Rock: Arkansas Experiment in Teacher Education, State Department of Education. 1958. 209 p. (Mimeo.)
86. STANLEY, WILLIAM O.; BROUDY, HARRY S.; and BURNETT, R. WILL, editors. *Improving Science Programs in Illinois Schools*. Urbana: University of Illinois, 1958. 87 p.
87. STODDARD, GEORGE D., and OTHERS. *Answers to Basic Questions on the Cooperative Study of the Dual Progress Plan*. New York: School of Education, New York University, 1958. 23 p. (Mimeo.)
88. STRATTON, VINTON STAFFORD. *Social Science Generalizations for Use in the Social Studies: Providing Education*. Doctor's thesis. Stanford, Calif.: Stanford University, 1957. 166 p. Abstract: *Dissertation Abstracts* 17: 2473; No. 11, 1957.
89. TRUMP, J. LLOYD. *Images of the Future: A New Approach to the Secondary School*. Urbana, Ill.: Commission on the Experimental Study of Utilization of the Staff in the Secondary School, 1959. 46 p.
90. TSCHUDIN, MARY S.; BELCHER, HELEN C.; and NEDELSKY, LEO. *Evaluation in Basic Nursing Education*. Basic Nursing Education, Curriculum Study Series, Vol. 2. New York: G. P. Putnam's Sons, 1958. 304 p.
91. TURNER, THOMAS B. "The Liberal Arts in Medical Education." *Association of American Colleges Bulletin* 44: 71-77; March 1958.
92. TYLER, RALPH W. "Do We Need a National Curriculum? A Conference Report." *Clearing House* 34: 141-48; November 1959.
93. U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, OFFICE OF EDUCATION. *Projects Under Contract (July 1, 1956—June 30, 1959)*. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1959. 30 p.
94. UNIVERSITY OF PITTSBURGH, and PITTSBURGH PUBLIC SCHOOL SYSTEM. *The Coordinated Education Center*. Pittsburgh: the University of Pittsburgh, Office of the Vice Chancellor for the Professional Schools, 1959. 18 p. (Mimeo.)
95. WAGNER, JOHN. "Texas Commission to Study Mathematics." *American Mathematical Monthly* 66: 310-11; April 1959.
96. WOLLAN, GERHARD N. "The Indiana School and College Committee on Mathematics." *American Mathematical Monthly* 66: 506-507; June-July 1959.
97. WOODRING, PAUL. *New Directions in Teacher Education: An Interim Report*. New York: Fund for the Advancement of Education, 1957. 142 p.
98. WRIGHT, GRACE S. *Block-Time Classes and the Core Program in the Junior High School*. U. S. Office of Health, Education, and Welfare, Office of Education, Bulletin 1958, No. 6. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1958. 70 p.

CHAPTER IV

Teaching

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A CHAPTER on teaching in an issue of the REVIEW devoted to curriculum planning and development is justified more by theoretical need than by the existence of research which can clearly be categorized under the label, "teaching." Educators turn to many other categories which pull together information and ideas related to teaching. In recent REVIEW issues, Ellis (14) examined writings dealing with instructional procedures in secondary schools, and Leavitt (33) reviewed the literature on teacher-pupil relationships in elementary schools. In the third edition of the *Encyclopedia of Educational Research*, writings related to teaching were summarized by Stiles (55) under "Instruction" and by Wingo (63) under "Methods of Teaching."

In summarizing literature on different aspects of the same phenomena, Barr and Jones (3) stated that the primary factors of teaching have been ignored and that only surface aspects have been studied. This opinion is not uncommon today. Dodes (12), reviewing studies from 1900-1955 in order to suggest measures for solidifying the background of pedagogical knowledge, concluded that the dearth of scientific evidence is the result, in part, of ready acceptance of mere opinion and of a lack of clarity in terminology. The need to study teacher behavior in a context of theory was emphasized by Ryans (47), and it is this recurring theme which justifies inclusion of a chapter on teaching in this issue of the REVIEW.

Whatever schools do or are expected to do, most educators would agree that teachers are expected to, and do, teach. Of all researchers in education, those who claim the curriculum as their field of inquiry presumably have the greatest interest in teaching. One would assume, therefore, that curriculum research would focus major attention on teaching in order to understand it and thereby gain greater control over it. However, teaching has seldom been studied by curriculum researchers as a social or educational phenomenon in its own terms. For example, the comprehensive review of 25 years of educational research (1) published in 1956 reported not one study focused directly on teaching.

During the three-year period of this review, researchers have continued to study (a) effectiveness of teaching and prediction of teacher success, (b) teacher-student relationships, and (c) methods and styles of teaching. There is, however, a growing interest in the study of teaching as such.

In addition to researches grouped under the three categories listed above, this chapter also reports, in the section entitled "Concepts of Teaching," studies which have been developed along the lines suggested in the preceding paragraph.

Effectiveness of Teaching and Prediction of Teaching Success

The recent review by Barr and Jones (3) and the critical analyses of the progress and problems of research related to teacher effectiveness by Mitzel (36) and Ryans (46) make unnecessary extensive review of that subject matter here. However, the focus of this chapter warrants some discussion of the implications of the research for the study of teaching.

Research in teacher effectiveness has frequently bypassed the fundamental problem of identifying or conceptualizing the teaching process. Describing teaching was treated as ancillary to the value problem of identifying the criteria of teacher effectiveness. Predictors have been identified in terms of ease of measurement or common-sense relation to the criteria. The obvious link between criterion and predictor, the teaching act, has been ignored or relegated to secondary importance. Using Mitzel's (36) terms, if process criteria are used rather than product or presage criteria, then the researcher might focus on some aspects of the teaching act; but all too frequently these aspects have not been made to compose a systematic description or theory of teaching. Consequently, each researcher has been inclined to conceptualize aspects of the process in terms of his own research needs or competencies, and not in terms of the profession's need for continual refinement and systematization of the concepts used to grasp the components of teaching.

Cogan (8, 9) illustrated this tendency. By categorizing teacher behavior as inclusive, preclusive, and conjunctive, he added to the store of concepts used for this purpose—which already includes such well-known concepts as authoritarian, democratic, teacher-centered, and integrative behavior. Although he contributed to the solution of the criterion problem by proposing measures of required and self-initiated student work, he contributed little toward a stricter conceptual structure for viewing teaching. In fairness, this probably was not Cogan's intent; yet it would seem that all researchers who try to structure the teaching act conceptually should also seek to contribute to the development of better theories of teaching.

Teacher-Student Relationship

Many researchers continue to focus on the relationship between teacher and pupils in an effort to identify theoretical tools which will facilitate more intensive analysis of teaching with greater cumulative effect. In a

controlled study of 74 secondary-school teachers, Page (40) found that free comments on the students' objective test papers resulted in higher test scores on future tests than limited, controlled comments. By controlled testing of six different approaches, Torrance and Mason (58) concluded that factual, low-pressure techniques were more effective in influencing air crewmen than techniques which depended on persuasiveness or example-setting.

Kounin and Gump (31) studied the techniques of kindergarten teachers in disciplining individual children and the spread of effects to other children. The dimensions of discipline that they investigated were clarity of directions, firmness, and roughness; and the dimensions of pupil behavior investigated were lack of reaction, behavior disruption, conformance, and nonconformance. Clarity of the teacher's direction was related to increased conformance, and roughness to increased behavior disruption, but firmness had no predictable influence on audience children.

Investigators focused on several factors as they moved from descriptive studies of classroom behavior to those which attempted to uncover possible causal factors in teacher-pupil relationships. Gage (17) summarized a number of studies related to teacher perception of students, in which teachers predicted or estimated certain responses of the pupils. In general, he found that the correlation between the accuracy of the teacher's perception and his effectiveness, as rated by the pupils, did not differ significantly from zero. The studies were grounded in a theoretical structure, perception being one element; hence, the findings could help refine the theoretical framework.

Evidence obtained by Gronlund and Whitney (22) indicated that teachers who accurately judged the sociometric status of children were also accurate in judging intelligence. It would be helpful if Gronlund and Whitney's data could be related to Gage's findings. Beilin and Werner (5) found that, of 39 high-school teachers, men and women frequently used different criteria to select from questionnaire results the students best adjusted and most poorly adjusted. Smither (53) reported a lack of relationship between teachers' apparent knowledge of the causes of children's misbehavior and the kinds of punishment they would use.

Several researchers focused on the values and attitudes of teachers as possible predictors of teacher-student relationships. Battle (4) was able to show that the degree of similarity between the pupil's value pattern and the teacher's ideal value pattern was related to the teacher's estimate of pupil achievement. Bowie (6) uncovered evidence that the teacher's verbal behavior in the classroom was influenced by his value patterns as identified by the *Allport-Vernon-Lindzey Value Scale*. She categorized the teacher's verbal behavior in terms of role-taking processes (feeling tone) and ideational content (ideas expressed), which implied a theoretical structuring of teaching. If she had contrasted this structure with other theoretical statements, she also would have contributed to the de-

velopment of a theory of teaching. In another study of the verbal behavior of teachers, Ravitz (44) found support for his hypothesis that teachers' verbal behavior reflected their concern for self or for students, as identified by a semantic differential inventory.

Three other studies attempted to relate teacher-pupil rapport to other personality indices. Dodge and Clifton (13), using student teachers as subjects, found middle-range correlations between their scores on a teacher-pupil rapport scale and on peers' ratings of social characteristics, professors' estimates of teaching ability, and cumulative grade averages. Sheldon, Coale, and Copple (48) reported that students scoring high on the *Minnesota Teacher Attitude Inventory* and on four scales of the *Minnesota Multiphasic Personality Inventory* differed significantly from low-scoring students in intelligence, authoritarianism, and certain manifest and latent needs. Rabinowitz and Rosenbaum (43) were unable to predict the teacher-pupil rapport of first-year teachers, as measured by a pupil inventory, from test data obtained in their senior year of college.

An idea expressed by Williams (62), Washburne (60), and Gordon (20) would seem to hold much promise for a different attack on the problem of student-teacher rapport. All three believed the relationship between teacher and student to be influenced by the tension between the institutional role of the teacher, as determined, for instance, by the principal, and the personal role that the teacher has developed. To cast the teacher-pupil relationship into a sociological framework of reference groups and role conflict might produce fruitful conceptions of the teaching act.

Interpretation of studies is also handicapped by the lack of adequate theorizing about teaching. Lack of a framework leads to difficulty in organizing or comparing. Without conscious attention to the theoretical structure of empirical studies, researches in teaching cannot be cumulative and build on their predecessors, except to refine techniques and method.

Methods and Styles of Teaching

During recent decades the most common approach to the study of teaching has been comparison of contrasting methods, usually identified as "teacher-centered" versus "student-centered" or "authoritarian" versus "democratic." Several studies which followed this direction were reported. Krumboltz and Farquhar (32) investigated achievement and motivational outcomes associated with the traditional instructor-centered and student-centered teaching procedures. They also included an "eclectic" procedure, a combination of the two extremes, which included student participation with instructor-led discussions and lectures. Results tended to show that students taught by eclectic methods were most highly motivated.

Novak (38), investigating "project-centered" and "lecture" methods used in teaching college biology, found that the project-centered methods

provided better for individual differences. Thompson and Tom (57), studying the effectiveness of pupil-centered versus teacher-centered patterns in teaching vocational agriculture, observed the pupil-centered method to be superior in some respects to the conventional, teacher-centered approach, and in no respects inferior to it. Haigh and Schmidt (23) demonstrated that for college students permitted to choose either teacher-centered or "group-centered" classes in psychology there were no significant differences in subject matter learned. Palmer and Verner (41) examined lecture, discussion, and lecture-discussion methods of class instruction in adult-education classes. In a review of the applications of research in social psychology to teaching, McNeil (35) interestingly described the characteristics of two imaginary schools, one of which embodied the findings of nondirective principles and the other of directive principles.

Three investigations were reported which dealt with teaching procedures associated with "directed" and "independent" discovery in learning. Kittell's (30) study demonstrated that groups given an intermediate amount of direction, in the form of underlying principles, retained and transferred more than groups given less or more direction. Craig (10) reported that increased direction of discovery activities effects increases in learning without accompanying losses in retention or transfer. Kersh (29) showed that the superiority of independent-discovery procedures of learning over procedures with "external direction" was to be explained in terms of increased student motivation rather than of the "meaningfulness" of the learning.

"Large-group" versus "small-group" instructional procedures were also the focus of attention. Nachman and Opoichinsky (37) compared the achievement, as measured by examination performance, of college students in a small class with a matched group of students in a large class. Results showed that students in the small class made higher scores on quizzes that specifically covered material presented in the classroom and not prepared by the students, but that the two groups did equally well on final examinations for which they had studied.

Siegel, Macomber, and Adams (49) reported an extensive study which compared the learning outcomes of large-group and small-group instruction on the college level. Achievement of students as measured by final examinations was as good in large groups as in small. Students with high ability performed equally well on tests regardless of instructional procedures, whereas students with low ability occasionally suffered by assignment to a large class. Test results in critical thinking and attitude change did not consistently favor the experimental large-group instruction. Students in experimental (large-group) sections tended to rate their instructors and courses somewhat less favorably than students in control (small-group) sections. McKenna (34) reviewed the research on class size conducted by a research institute at Columbia University over a 15-

year period and observed that there is no one arbitrary class size that can be defended for all school systems or for all levels.

Two significant critical analyses of research dealing with contrasting teaching approaches appeared. Anderson (2), examining 49 experimental studies in which "authoritarian" leadership was compared with "democratic" leadership on the basis of productivity and morale, found evidence lacking to show that either type of leadership is consistently associated with high productivity. In the educational setting, morale appears to be higher under learner-directed conditions, at least when anxiety over grades is reduced. Anderson saw four factors as contributing to make findings confused and contradictory: (a) lack of methodological rigor and inadequate research design, (b) lack of familiarity with other research, (c) lack of precision in operational definitions of leadership styles, and (d) low level of empiricism of research undertaken. Explaining the significance of the last factor, Anderson observed that teacher-centered and learner-centered methods have been repeatedly investigated not with a view to determining *how* one would lead to superior learning, but merely with a view to finding out *if* one style is superior. He concluded that the authoritarian-democratic construct provides an inadequate conceptualization of leadership behavior.

Oliver (39) traced the history of the "unit" concept in social studies teaching and reviewed its effectiveness in contrast to the traditional "assignment-recitation" approach. With factual retention as the outcome measured, he found that research results revealed no striking evidence of superiority of the unit method. His extensive review of the theory and practice led him to question whether the unit concept is useful. He urged careful tests of teaching procedures premised on a theory of how thinking is developed.

All the above studies have something of importance to say about instructional techniques, but they are most meaningful as providing data about specific aspects of teaching or as helping a reader form his own concept of teaching. The isolated study remains isolated unless it is tied to other studies by a practical field problem, or unless it is seen in relationship to other studies by means of some theoretical framework.

Concepts of Teaching

Other studies focused attention directly on the processes of teaching, and the roles, functions, and behavior of teachers. Approaches varied widely: some authors drew implications for teaching from research and speculation in psychology, philosophy, and sociology; some developed relationships between teaching and therapy; some studied teaching in its own terms, rather than as derivative of other fields. Few studies were experimental; mainly they emphasized the development of conceptual

(theoretical) frameworks within which experimental investigations may proceed.

Psychology has long been a significant source of ideas about teaching. Fleming (15) set forth a view based largely on findings of psychological research. She identified six functions of the teacher: she identified the teacher as student of motivation, promoter of learning, observer of growth, craftsman and technician, experimenter, and administrator and therapist. Burton (7) proposed a set of principles of teaching consisting of inferences drawn from principles of learning. Hively (26) discussed the implications of Skinner's reinforcement theory of learning for the development of teaching machines.

The recent publication of the papers delivered at the Conference on the Art and Science of Automatic Teaching of Verbal and Symbolic Skills (18) called increased attention to the theory of teaching and the interrelationships among diverse studies; for, as Galanter states (19), teaching machines "are a theory of teaching." The problems of programing, pacing, prompting, and reinforcement are problems common to all teachers, although perhaps not conceived in the same way. The technical demands involved in producing and using teaching machines should certainly force the curriculum and teaching theorist to a more careful dissection of the teaching act. An inclusive annotated bibliography on teaching machines was compiled by Fry, Bryan, and Rigney (16).

Relationships between teaching and therapy were discussed by four authors. In Rogers' (45) view, a teacher cannot "teach" a learner new concepts and responses; rather, the best teaching emerges from a teacher-learner relationship in which the former is accepting and permissive and the latter makes relevant discoveries himself. Stovsky (56) presented the psychotherapeutic view that teaching is basically an interpersonal relationship whose purpose is control or reduction of anxiety and that it thus promotes learning.

Watson (61) saw a close relationship between therapy and teaching. He conceived teaching as the organization of interpersonal interactions in groups to convey meanings that meet personal needs and interests. In his view, individual tutoring is "therapy," and all forms of group treatment are "teaching." Tyler (59) discussed five basic concepts of psychoanalytic theory and practice that have values for the theory and practice of teaching: the unconscious, the instincts, repression, structure of mental apparatus, and development of personality.

Views of teaching evolved from logic and theory of knowledge were developed by four authors. Henderson (25) identified two basic forms of knowledge, "know-how" and "know-that," which are the concern of teachers, and he made proposals for the preparation of teachers in the logical foundations of their work. Smith (51) explored the relevance of logic to thinking and teaching and proposed that "educational logic" should be a part of teacher preparation. He contended that the reduction

of thinking to psychological processes has left teachers without an adequate criterion for disciplined reasoning. Cunningham (11) identified communication as the key in teacher-student relationships, and language as the major communicative device. He proposed, therefore, that the teacher must understand the logical characteristics of language if he is to be effective. Plochmann (42) analyzed the logic of the process of communication in teaching systems of knowledge, particularly the problems of breaking down the systems for transmission and resynthesizing them in the mind of the learner.

The sociological concept of "role" has become useful in viewing the functions of the teacher. Havighurst and Neugarten (24) interpreted the teacher's role as composite of several sub-roles in relation to students: mediator of learning, disciplinarian, parent-substitute, judge, confidant, and surrogate of middle-class morality. Grambs (21) distinguished two categories of the teacher's role: director of learning and mediator of the culture. Spindler (54) viewed the teaching role as that of cultural transmission with special attention to the transmission of patterned conflicts in values.

Huebner (27) developed a conceptual scheme designed to facilitate understanding of the relationship between action in the elementary-school classroom and the educational outcomes of such action. Stressing the need for conceptual consistency, he attempted to use concepts derived from a unified behavioral theory to look at classroom action and educational outcomes. He suggested certain classroom actions that might best serve as focal points for observation in order to predict outcomes.

Experimental investigations dealing with the teaching process were carried forward by Smith and others (50, 52) and Hughes and others (28). Smith reported results of the first phase of a five-year investigation into the logic of teaching in secondary schools. His search for the logical structure of teaching took the form of a study in natural history; it was classificatory and descriptive. The authors contended that this is a stage of investigation which must be worked out before teaching can be understood in its own right, rather than as a system of principles and practices supposedly derived from philosophy and psychology; they believed that they clearly established the existence of logical operations in teaching and that some of these operations are significantly more prevalent than others, notably those of *describing*, *designating*, and *explaining*, in that order. With respect to logical operations within the various subject fields, the conclusion tentatively reached was that differences may exist among teachers and among fields in the extent to which the logical operations are employed.

Hughes and others (28) reported a study with a twofold purpose: development of (a) a definition of good teaching and (b) means for assessment of the quality of teaching. Teaching was defined as "the interaction of teacher with child or group." Basic data were specimen records

of the behavior of 41 teachers in three states, all of whom were judged to be "good" teachers by administrators or supervisors. Through the study of the data gathered, 31 teaching functions were identified and organized in seven categories: controlling function, imposition of teacher, facilitating function, functions that develop content, functions that serve as response, functions of positive affectivity, and functions of negative affectivity. The most frequent and pervasive functions performed by teachers were in the category of *controlling*. For most teachers the acts of control were well over 40 percent of all teaching acts. The consequences of the categorized functions were examined in terms of authors' view of desirable objectives of education, and a model of "good" teaching was proposed in the light of responses required by teachers to fulfill these objectives.

Conclusions

Review of the last three years' research supports the contention that recent modes of inquiry have not been very fruitful. New approaches are called for. The study of teaching in its own terms as illustrated by the writings cited in the last section is a promising approach. Smith (50) has stated this well: "Teaching is a natural phenomenon related to the cultural survival of a people, as reproduction is related to their cultural survival. Teaching has its own forms, its own constituent elements, its own problems and its own regularities. It takes place under a stable set of conditions—time limits, authority figures, limited ability of students, institutional structures, etc. All these considerations support the conclusion that teaching is to be studied in its own right if we would understand it and thereby gain control over it."

The researcher who is interested in the testing, refinement, and development of new concepts and theoretical systems has a life's work. The phenomena of teaching are there to be described and analyzed. From such efforts, explanatory and predictive theory is possible. But to develop such theory, the "conventional wisdom" of the educator and the educational researcher must be challenged. This is the function of research. Too few of the studies referred to here move from empirical data to an evaluation of the concepts used to organize these data.

Bibliography

1. AMERICAN EDUCATIONAL RESEARCH ASSOCIATION. "Twenty-Five Years of Educational Research." *Review of Educational Research* 26:199-344; June 1956.
2. ANDERSON, RICHARD C. "Learning in Discussions: A Resume of the Authoritarian-Democratic Studies." *Harvard Educational Review* 29:201-15; Summer 1959.
3. BARR, ARVIL S., and JONES, ROBERT E. "The Measurement and Prediction of Teacher Efficiency." *Review of Educational Research* 28:256-64; June 1958.
4. BATTLE, HARON J. "Relation Between Personal Values and Scholastic Achievement." *Journal of Experimental Education* 26:27-41; September 1957.
5. BEILIN, HARRY, and WERNER, EMMY. "Sex Difference Among Teachers in the Use of the Criteria of Adjustment." *Journal of Educational Psychology* 48:426-36; November 1957.

6. BOWIE, BLANCHE L. *Relationship of Teachers' Personal Values and Their Verbal Behavior*. Doctor's thesis. College Park: University of Maryland, 1957. 125 p. Abstract: *Dissertation Abstracts* 17:2508-2509; No. 11, 1957.
7. BURTON, WILLIAM H. "Basic Principles in a Good Teaching-Learning Situation." *Phi Delta Kappan* 39:242-48; March 1958.
8. COGAN, MORRIS L. "Behavior of Teachers and the Productive Behavior of Their Pupils." *Journal of Experimental Education* 27:89-124; December 1958.
9. COGAN, MORRIS L. "Theory and Design of a Study of Teacher-Pupil Interaction." *Harvard Educational Review* 26:315-42; Fall 1956.
10. CRAIG, ROBERT C. "Directed Versus Independent Discovery of Established Relations." *Journal of Educational Psychology* 47:223-34; April 1956.
11. CUNNINGHAM, EARL C. "How Logic Can Help the Teacher." *Journal of Teacher Education* 9:353-58; December 1958.
12. DODES, IRVING A. "Science of Teaching: 1900-1955." *Bulletin of the National Association of Secondary-School Principals* 41:97-115; February 1957.
13. DODGE, GALEN W., and CLIFTON, DONALD O. "Teacher-Pupil Rapport and Student Teacher Characteristics." *Journal of Educational Psychology* 47:364-71; October 1956.
14. ELLIS, JOSEPH R. "The School Program: General Instructional Procedures." *Review of Educational Research* 30:49-56; February 1960.
15. FLEMING, CHARLOTTE M. *Teaching; A Psychological Analysis*. New York: John Wiley and Sons, 1958. 291 p.
16. FRY, EDWARD B.; BRYAN, GLENN L.; and RIGNEY, JOSEPH W. *Teaching Machines: An Annotated Bibliography*. Electronics Personnel Research Group, Technical Report No. 28. Los Angeles: Department of Psychology, University of Southern California, 1959. 106 p. (Mimeo.)
17. GAGE, NATHANIEL L. "Explorations in Teachers' Perceptions of Pupils." *Journal of Teacher Education* 9:97-101; March 1958.
18. GALANTER, EUGENE, editor. *Automatic Teaching: The State of the Art*. New York: John Wiley and Sons, 1959. 198 p.
19. GALANTER, EUGENE. "The Ideal Teacher." *Automatic Teaching: The State of the Art*. New York: John Wiley and Sons, 1959. Chapter 1, p. 1-11.
20. GORDON, C. WAYNE. *The Social System of the High School; A Study in the Sociology of Adolescence*. Glencoe, Ill.: Free Press, 1957. 184 p.
21. GRAMBS, JEAN. "The Roles of the Teacher." *The Teacher's Role in American Society*. Fourteenth Yearbook, John Dewey Society. New York: Harper and Brothers, 1957. Chapter 6, p. 73-93.
22. GRONLUND, NORMAN E., and WHITNEY, ALGARD P. "Relation Between Teachers' Judgments of Pupils' Sociometric Status and Intelligence." *Elementary School Journal* 58:264-68; February 1958.
23. HAIGH, GERARD V., and SCHMIDT, WARREN H. "The Learning of Subject Matter in Teacher-Centered and Group-Centered Classes." *Journal of Educational Psychology* 47:295-301; May 1956.
24. HAVIGHURST, ROBERT J., and NEUGARTEN, BERNICE L. *Society and Education*. Boston: Allyn and Bacon, 1957. 465 p.
25. HENDERSON, KENNETH B. "Training in Linguistic Analysis in Teacher-Education Curricula." *Ninth Yearbook*, American Association of Colleges for Teacher Education. Oneonta, N. Y.: the Association, a department of the National Education Association, 1956. p. 64-74.
26. HIVEY, WELLS. "Implications for the Classroom of B. F. Skinner's Analysis of Behavior." *Harvard Educational Review* 29:37-42; Winter 1959.
27. HUEBNER, DWAYNE E. *From Classroom Action to Educational Outcomes: An Exploration in Educational Theory*. Doctor's thesis. Madison: University of Wisconsin, 1959. 218 p. Abstract: *Dissertation Abstracts* 20:968-69; No. 3, 1959.
28. HUGHES, MARIE M., and OTHERS. *A Research Report: Assessment of the Quality of Teaching in Elementary Schools*. Salt Lake City: University of Utah, 1959. 314 p.
29. KERSH, BERT Y. "The Adequacy of 'Meaning' as an Explanation for the Superiority of Learning by Independent Discovery." *Journal of Educational Psychology* 49:282-92; October 1958.

30. KITTELL, JACK E. "Experimental Study of the Effect of External Direction During Learning on Transfer and Retention of Principles." *Journal of Educational Psychology* 48:391-405; November 1957.
31. KOUNIN, JACOB SEBASTIAN, and GUMP, PAUL V. "The Ripple Effect in Discipline." *Elementary School Journal* 59:158-62; December 1958.
32. KRUMBOLTZ, JOHN D., and FARQUHAR, WILLIAM W. *The Effect of Three Teaching Methods on Achievement and Motivational Outcomes in a How-To-Study Course*. Psychological Monographs, Vol. 71, No. 14. Whole No. 443. Washington, D.C.: American Psychological Association, 1957. 26 p.
33. LEAVITT, JEROME. "Teacher-Pupil Relationships." *Review of Educational Research* 29:209-17; April 1959.
34. MCKENNA, BERNARD H. "Greater Learning in Smaller Classes." *NEA Journal* 46:437-38; October 1957.
35. MCNEIL, JOHN D. "Toward Appreciation of Teaching Methods." *Phi Delta Kappan* 39:295-301; March 1958.
36. MITZEL, HAROLD E. "Teacher Effectiveness: Criteria of Teacher Effectiveness." *Encyclopedia of Educational Research*. Third edition. (Edited by Chester W. Harris.) New York: Macmillan Co., 1960. p. 1481-86.
37. NACHMAN, MARVIN, and OPOCHINSKY, SEYMOUR O. "The Effects of Different Teaching Methods: A Methodological Study." *Journal of Educational Psychology* 49:245-49; October 1958.
38. NOVAK, JOSEPH D. "An Experimental Comparison of a Conventional and a Project Centered Method of Teaching a College General Botany Course." *Journal of Experimental Education* 26:217-30; March 1958.
39. OLIVER, DONALD W. "The Unit Concept in Social Studies: A Re-Examination." *School Review* 66:204-17; June 1958.
40. PAGE, ELLIS B. "Teacher Comments and Student Performance: A Seventy-Four Classroom Experiment in School Motivation." *Journal of Educational Psychology* 49:173-81; August 1958.
41. PALMER, ROBERT E., and VERNER, COOLIE. "A Comparison of Three Instruction Techniques." *Adult Education* 9:232-38; Summer 1959.
42. PLOCHMANN, GEORGE K. "On the Organic Logic of Teaching and Learning." *Journal of General Education* 12:119-24; April 1959.
43. RABINOWITZ, WILLIAM, and ROSENBAUM, IRA. "Failure in the Prediction of Pupil-Teacher Rapport." *Journal of Educational Psychology* 49:93-98; April 1958.
44. RAVITZ, LEONARD A. *Teacher Self-Acceptance Related to Acceptance-of-Pupil in the Classroom*. Doctor's thesis. College Park: University of Maryland, 1957. 158 p. Abstract: *Dissertation Abstracts* 18:459; No. 2, 1958.
45. ROGERS, CARL R. "Personal Thoughts on Teaching and Learning." *Merrill-Palmer Quarterly* 3:241-43; Summer 1957.
46. RYANS, DAVID GARRIOT. "Prediction of Teacher Effectiveness." *Encyclopedia of Educational Research*. Third edition. (Edited by Chester W. Harris.) New York: Macmillan Co., 1960. p. 1486-91.
47. RYANS, DAVID GARRIOT. "Theory Development and the Study of Teacher Behavior." *Journal of Educational Psychology* 47:462-75; December 1956.
48. SHELTON, MARTIN S.; COALE, JACK M.; and COPPLE, ROCKNE. "Concurrent Validity of the Warm Teacher Scales." *Journal of Educational Psychology* 50:37-40; February 1959.
49. SIEGEL, LAURENCE; MACOMBER, FREEMAN G.; and ADAMS, JAMES F. "The Effectiveness of Large Group Instruction at the University Level." *Harvard Educational Review* 29:216-26; Summer 1959.
50. SMITH, B. OTHANEL. "A Concept of Teaching." *Teachers College Record* 61: 229-41; February 1960.
51. SMITH, B. OTHANEL. "Logic, Thinking, and Teaching." *Educational Theory* 7: 225-33; October 1957.
52. SMITH, B. OTHANEL, and OTHERS. *A Study of the Logic of Teaching: A Report on the First Phase of a Five-Year Research Project*. Urbana: Bureau of Educational Research, University of Illinois, 1960. 115 p. (Mimeo.)
53. SMITTER, FAITH W. "Study of Teachers' Beliefs Regarding Control of Child Behavior." *California Journal of Elementary Education* 27:11-15; August 1958.

54. SPINDLER, GEORGE D. *The Transmission of American Culture*. Cambridge, Mass.: Harvard University Press, 1959, 51 p.
55. STILES, LINDLEY J. "Instruction." *Encyclopedia of Educational Research*. Third edition. (Edited by Chester W. Harris.) New York: Macmillan Co., 1960. p. 710-15.
56. STOVSKY, WILLIAM H. "Using the Insights of Psychotherapy in Teaching." *Elementary School Journal* 58: 28-35; October 1957.
57. THOMPSON, ORVILLE E., and TOM, FREDERICK K. "Comparison of the Effectiveness of a Pupil-Centered Versus a Teacher-Centered Pattern for Teaching Vocational Agriculture." *Journal of Educational Research* 50:667-78; May 1957.
58. TORRANCE, ELLIS P., and MASON, RAIGH. "Instructor Effort to Influence: An Experimental Evaluation of Six Approaches." *Journal of Educational Psychology* 49:211-18; August 1958.
59. TYLER, LOUISE L. "Psychoanalysis and Curriculum Theory." *School Review* 66:446-60; December 1958.
60. WASHBURN, CHANDLER. "The Teacher in the Authority System." *Journal of Educational Sociology* 30:390-94; May 1957.
61. WATSON, GOODWIN. "Psychoanalysis and the Future of Education." *Teachers College Record* 58:241-47; February 1957.
62. WILLIAMS, ROBERTA. "Power in the Teaching Situation." *Journal of Educational Sociology* 31:158-63; December 1957.
63. WINGO, G. MAX. "Methods of Teaching." *Encyclopedia of Educational Research*. Third edition. (Edited by Chester W. Harris.) New York: Macmillan Co., 1960. p. 848-61.

CHAPTER V

Administrative Structure and Processes in Curriculum Development

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THEORIES AND concepts of curriculums come into operational being, are nurtured and, hopefully, improved through administrative processes and structures. This chapter reviews the literature of the last three years bearing on the relation between these administrative structures and their processes, and the curriculum. It is organized into four major categories: (a) supervisory and administrative roles, (b) patterns of inservice education, (c) physical facilities and instructional materials, and (d) school structure and organization.

Supervisory and Administrative Roles in Curriculum Development

Cammarota (26), Clark (31), Jensen (60), Krug (67), and the Association for Supervision and Curriculum Development 1960 Yearbook (10) indicate that the all-encompassing role of the administrator as a leader in curriculum development must be developed without challenging or deterring the leadership function of members of the staff. Dutton and Hockett (38) and McSwain (75) propose that the principal's essential leadership function is to promote co-operative action on curriculum, not only within the school staff, but also in the school community.

Frazier, in (11), saw leadership as composed of functions necessary to group maintenance and to furtherance of group purposes, but did not delineate the component parts and their relationships to curriculum. Grant (49) recognized the principal's function as a leader, but observed that few curriculum or instructional changes result from staff work except as there have been changes in the values, understandings, and skills of teachers. Grant's concept of leadership, though widely accepted, is not based on substantial research.

Arnheim (8), Cammarota (26), Frazier (11), Jensen (60), Krug (67), and Spalding (101), discussing the principal's role in curriculum development, stressed the importance of his understanding of people, skill in identifying and defining educational problems, and ability to develop procedures for solving problems and for evaluating plans of action.

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Wiles and Grobman (110) reviewed the Sugg study (103) of the operational roles of the principal as these roles are defined by the character of the principal's relationships with the individual teacher, the total staff, and the school community. Sugg found the faculty readier for curriculum change in the elementary school administered by a democratic principal than in the school where the status leader was not democratic. That no relationship was found in the secondary school between readiness for change and operational pattern was explained on the basis of the secondary-school department head's being more influential in dealing with instructional matters than the principal.

There were few studies of the role of the administrator in dealing with particular problems of curriculum. Jameson and Hicks (59) observed use of the same procedures to deal with specific instructional problems as with problems of over-all curriculum improvement. Arnheim (8) saw provision for equitable staff use of instructional materials as a principal's problem. Spalding (101) advocated broadening of the principal's responsibility to include all of the curriculum activities of a school, arguing that he is the one person concerned with all aspects of the educational program.

A critical problem not developed in the literature is that of dealing effectively with the overlapping responsibilities and roles of principals, supervisors, curriculum directors, and superintendents. The role of the supervisor in curriculum development is usually separated from administrative roles. Foster (42), studying 40 elementary supervisors and 50 teachers, observed that both perceived the role of the supervisor as having to do primarily with on-the-job training of teachers. Adams and Bowie (3), Clark (31), and Laing (68) saw supervision as concerned with improving the quality of all learning opportunities, and the supervisor's role as that of a service agent, not a line officer. Little evidence, however, was presented to buttress their propositions.

Inservice Education and Curriculum Development

Much curriculum development takes place in, or is the result of, inservice education. Writings dealt with techniques of inservice education, patterns of personnel involvement, organization of inservice work, work products (handbooks, resource units, and the like), evaluation of inservice programs, resources, and motivation of teacher participation.

Techniques of Inservice Education

Taylor (105), using a stratified, random, proportional sample of 100 public senior high schools in Indiana, observed the following techniques in secondary inservice programs: (a) pre- and post-sessions with pay

(found especially in large schools); (b) development of a professional library with a place for browsing; (c) regular faculty meetings during the school day; (d) teacher committees working with the board of education and the administration on salary schedules that reward teacher growth; (e) teacher committees making community surveys in connection with curriculum development; (f) faculty committees studying school problems, experimenting, and evaluating; (g) visiting of classes by teachers in their own schools or others; (h) special programs for induction of new teachers; (i) small-group study of the curriculum; and (j) provision for sabbatical leave. Taylor found a wide variation among schools in the use of these techniques.

Teachers in Idaho surveyed by Daines (35) indicated the workshop to be their preferred method of inservice education. Sims (99) found workshop technique considered by teachers in Topeka to be very useful for inservice growth in science. Applegate (7), surveying inservice programs of a 25-percent, stratified, random sample of Minnesota schools, found that over 60 percent had workshops in 1955 and 75 percent expected to have them in 1956. Despite Applegate's finding of increasing use of workshops, they were not rated highly by teachers. There was no evidence as to whether workshop experience produced significant change in the behavior of teachers.

Lonsdale and Marshall (72) observed a California method whereby a principal and a consultant work with an experienced teacher to prepare and develop a demonstration lesson which is followed by a faculty meeting to relate the reactions of observers to improved teaching practices. Hedges and others (55) described observations of curriculum practices in outstanding schools of other states by teachers and principals of Morehouse Parish, Louisiana.

Many curriculum workers and administrators have great confidence in university or college course work as an inservice device. Alexander (5), studying co-operation between Dade County and the University of Miami, reported the following patterns: summer workshops of two- or three-week duration; seminars for persons in specialized positions, e.g., the principal; practicums for entire faculties; practicums for supervisory teachers; after-school lecture series; and specialized campus courses offered on an inservice basis for Dade County personnel only.

In these reports, no information is given as to what effect the classes, visits, and demonstration programs had on the attitudes and understandings of participating teachers, or on the instructional practices and programs of the schools involved.

Patterns of Personnel Involvement

Berge, Harris, and Walden (18) found three major patterns of personnel involvement in inservice programs: (a) centralized approach—

curriculum development by the central office; (b) decentralized approach—curriculum development by the school staff; and (c) centrally co-ordinated approach—central staff aid to teachers. The researchers, using guidelines suggested by Parker (89), rated the centrally co-ordinated approach highest.

The importance of the role of teachers in the selection of problems for study was observed by Daines (35), Taylor (104), and Krebs (66). Daines reported disagreement between administrators and teachers in Idaho as to what problems were important to study in an inservice project.

The use of consultants in programs of inservice education is a widespread pattern. Richardson (94) described the use of college and university staffs to help school districts in New Jersey improve their science programs. Alexander (5) believed that an effective inservice program can be fostered by co-operation between public-school consultants and those from university faculties.

Taylor (105) observed the absence in an Indiana sample of lay co-operation in curriculum development, but Bienvenu (21) reported utilization of lay people in 12 school systems co-operating directly with the Joint Council on Economic Education. Lay participation was described in Ayars' evaluation (13) of five community resources workshops. Berge, Harris, and Walden (18) showed that school systems using the centrally co-ordinated approach to inservice education made frequent use of lay people.

In the literature concerning the patterns of personnel involvement, however, many problems seem not to be recognized: the effect of curriculum problems on personnel structure; the nature and purpose of educational decisions, and authority for such decisions; and the effectiveness of alternative staff organizations for curriculum work.

Problem Areas for Organizing Inservice Education

Daines (35) stated five problems most often selected by teachers for inservice study: (a) providing for slow learners; (b) providing for fast learners; (c) providing for children with behavior problems; (d) developing skills for independent word attack at different reading levels; (e) developing the feeling of confidence, security, and belonging in children. Brandt and Perkins (22) reported that the teachers' participation in child-study programs of the University of Maryland's Institute of Child Study did not affect their pupils' reading and arithmetic achievements, but resulted in more positive ways of working with children and more democratic classroom organization.

Alexander (5), Weiss (108), and Nelson (84) reported interest in child study in inservice programs. Nelson (84) also reported attention in inservice programs in California to supervision and co-ordination, serv-

ices to secondary schools, kindergarten programs, outdoor education, evaluation of instructional materials, and all the subject areas. Berge, Harris, and Walden (18), however, found that when individual school groups determined their own plans of action, they stressed child study, guidance, and human relations most frequently, although most of the subject-matter areas received some attention.

Work Products

Applegate (7) revealed that teachers' handbooks were prepared in about half of the sampled Minnesota schools; in 42 percent, the central office staffs prepared them. All teachers ranked preparation of the handbook among the top three of 25 selected inservice practices. Koch (64) reported that statements of city-wide educational philosophy, as well as local-school philosophy, were prepared in St. Paul. Berge, Harris, and Walden (18) showed that the development of teacher guides and courses of study, revision of reporting systems, and long-range planning of course offerings were staff enterprises which occurred frequently. Scope and sequence charts in economic education were developed or adapted from those produced by workshops in California, Indiana, and Ohio (21).

Nelson's examination (84) of California county inservice programs revealed a variety of such work products as the following: science exhibits; social studies skeleton units and directory of materials; music and art guide sheets, bulletins, festivals, and teacher aids. No appraisal of the value of these work products to meet teacher needs or to improve educational programs was reported.

Released Time and Use of Resources

Rehage and Denmark (92) observed four types of inservice programs in addition to those undertaken by local systems: area, state, regional, and national. In an area program in Michigan, for example, consultants were provided, but adequate time for teacher participation was not. The Illinois Curriculum Program provided both kinds of resources.

Physical Facilities and Instructional Materials

Few of the studies of physical facilities (a topic regularly discussed in the REVIEW issue devoted to "Administration") related directly to the curriculum. Belknap (16) used the 10 developmental tasks of children as a basis for planning the kindergarten room. His major observation was the need for flexibility of equipment and for varied use of space. Alexander (4), examining the ungraded school from the architect's point of view, stressed the importance of planning for flexibility and ease in dividing large groups.

Increasing attention was paid to design of classrooms for specific subject-matter areas. Bagby and Stickle (14) reported results of a survey on what is needed in an English classroom, and Carter (30) discussed facilities for music and drama. Ovard (88) surveyed planning of social studies facilities. Ireland (58) described a plan featuring workshops and "student action" rooms that permit students to develop particular interests or abilities. Brubaker and Perkins (24) advocated primary emphasis upon space designed to stimulate individual learning, discussing (a) "quest space" for individual study, (b) teacher studios, and (c) group spaces. LeCronier (71) described a school designed to fit a situation in which team-intern teaching was employed.

The writings reported here recognize that school-plant planning, as well as curriculum planning, must proceed from a carefully conceived idea of what the educational program ought to achieve. Once the purposes are clear, the physical facilities of the school must promote, rather than prescribe, the curriculum. Since purposes will undoubtedly change and since newer teaching methods will be devised, the keynote at present is flexibility.

Many suggestions were made for a center for instructional materials, and DeBernardis (37) proposed the following as the goals for use of such a center: It must (a) encourage teachers and pupils to use a variety of materials, (b) provide means for exchange of materials, (c) provide for effective storage and distribution, (d) provide inservice education facilities, (e) provide for production of materials, (f) provide inventory catalogs, (g) provide repair facilities, and (h) draw together related materials on any given topic. Carmony (29) believed that the library space can provide maximum preview and administrative service with minimum new-space requirements. Cypher (34) and Sattley (95), on the other hand, raised objections to the use of the school library as a general materials center.

Davidson (36), Hamilton (50), and Kosell (65) described methods of distribution of instructional materials. Evaluations of distribution techniques, however, are almost nonexistent in spite of the obvious relationship between distribution and utilization of materials.

Gillingham (45) tried to find a method of involving school personnel in the evaluation and selection of instructional materials. He approved the trend toward having the audio-visual staff advise committees of teachers who had major responsibility for evaluation and selection of audio-visual materials.

Preparation for Use of Instructional Materials

Benda (17) found that most teacher-training institutions have no established course of study in audio-visual instruction. Beginning teachers are thus without full awareness of the potential contributions of various

media. Such courses as were offered stressed operation of machinery rather than selection and proper utilization of materials. Camp (27) found a positive relationship between the teacher's use of audio-visual materials and his level of audio-visual training. These studies made clear that the presence of instructional materials does not ensure their intelligent use or, indeed, their use at all.

School Structure and Organization

Goodlad and Anderson (47) confirmed increasing use of the nongraded plan throughout the United States. Austin (12) gathered information on the nongraded primary unit, concerning its development, objectives, operations, professional staff, and public relations.

As the nongraded pattern found its way into new communities, variations in organization and structure developed, and individual plans were based on different emphases: continuous progression (39), division by reading levels (48), and provision for the gifted (91). Kluwe (63), investigating integration of the kindergarten and the primary programs, found that integration of the programs resulted in some statistically significant advantages to kindergarten children in better social adjustment and greater reading readiness.

Finley (40), working with a self-contained group of third-, fourth-, and fifth-grade children, found that, in this flexible grouping plan, the youngest benefited most in terms of academic achievement and that the growth of the older pupils was not impaired.

Hamilton and Rehwoidt (51, 93) reported on the multi-grade, multi-age plan in the Torrance Unified School District of California. This plan groups children varying three or four years in age and grade level at a primary level and at an intermediate level. A consistent pattern of gains greater than those of children in single-grade classes was observed in academic achievement, personal and social adjustment, and maturity and desirable behavior characteristics.

Bremer (23) found that first-grade reading-achievement scores were higher for high-readiness children who remained in regular heterogeneous classes than for high-readiness children who were segregated from low-readiness children. Martin (77), analyzing ability grouping in junior high schools, found little evidence that it materially benefited any of the segregated ability groups.

Morton (80) discussed successful heterogeneous grouping where homogeneous grouping is not feasible because of the size of the school. Wilhelms (111) described the flexible-open society that can exist where various grouping procedures are all used in the same single classroom. Crutcher and Smith (32) maintained that average-low, average-high grouping which avoids the disparity of most homogeneous plans provides for both successful academic learning and successful social learning.

Attention was given to the dual-progress plan, whereby the elementary student spends half days in graded classes of English and social studies, and half days in nongraded classes with specialized teachers. Pregler (90), Stoddard (102), and Wernick (109) reported such practices but gave no data regarding their results.

Concern for the gifted rekindled interest in reappraising grouping practices. In general, evaluations of pupil achievement in secondary schools and in specific subject areas tended to favor homogeneous rather than heterogeneous grouping. Gallant (44), Johnson and Shields (61), and Shapleigh (98) described grouping for the gifted at the high-school level, but made no evaluations. Hart (53), Smith (100), Wagner (107), and Wernick (109) reported improved accomplishment in reading, language arts, arithmetic, and science as a result of homogeneous grouping at the elementary-school level.

Gallagher (43), Hay (54), Lauchner and Horner (69), and Lawson (70) cautioned against accepting grouping uncritically and pointed out that homogeneous grouping for one subject area may actually extend the range of heterogeneity for another. Conclusions about grouping which have been reached on the basis of evaluation of one or two objectives may change when a broader range of objectives is considered—and physical rearrangements of pupils ought to be related to, or determined by, equally important rearrangements in curricular and instructional practices.

The literature described utilization of in-class enrichment practices for the gifted (1, 9); discussed academic segregation of the gifted (19, 52, 73, 91); and proposed programs of acceleration (56) and the utilization of the kinds of teaching procedures used in colleges (33). Many state-wide (78) and city programs (28, 57) were in process of development. Bettelheim (20) observed, however, that the claims and counterclaims for segregated education are emotional rather than scientifically based.

Anderson (6) believed most gifted children need more than enrichment in regular classrooms, but Baldauf (15) showed that they make above-average gain when participating in enrichment programs. This suggests that the nature and quality of the enrichment program may be the important factor. Abramson (2) found that ability grouping for children of high ability had little or no effect on later academic achievement. Bettelheim (20) believed that removing gifted children from academic contact with others may create serious problems for them and for society. Mann (76), reporting greater acceptance and rejection among children within ability groups than across groups, found that children in heterogeneous groups showed greater range of friendships, both in and out of school. Goldworth (46), in a more limited study, found that segregation of the gifted in grades 4 through 8 had no effect on friendship patterns and group cohesion. Herminhaus (57) reported positive social effects for the segregation program. Crutcher and Smith (32), Wernick (109), and Yerg (112) reported similar results for average and slow-learning children.

Otto (87) pointed out that acceptance of individual differences forces concern for differentiated education and for changes in organization to deal with such differences. Most mechanical approaches to school and class organization deal with peripheral factors rather than with problems of instruction and necessary instructional resources. Thelen (106) believed grouping based on feelings, attitudes, ambitions, and relationships among children, plus appropriate instructional planning and teaching, far more likely to produce increased achievement than grouping designed for increased manageability of pupils or comfort of teachers.

The literature on the effects of grouping on the gifted was reviewed in a previous issue of the REVIEW (41).

Staff Utilization

During the period under review, the *Education Index* first employed the term "staff utilization" as a heading for classifying the rapidly increasing literature dealing with teaching teams and other experimental patterns of organizing the instructional staff. In two extensive surveys, the Commission on the Experimental Study of the Utilization of the Staff of the Secondary School (82, 83) brought together accounts, descriptions, and progress reports of a variety of studies. Although results of almost all were incomplete, there was an observable tendency for many to limit the scope of their inquiries to seeking ways to use nonprofessional personnel, audio-visual aids, modified schedules, and varying sizes of classes in order to free the time of teachers from noninstructional responsibilities or to make experienced teachers with special skills available to larger numbers of students. So far, attention has been centered on the administrative and mechanical aspects of staff reorganization and has not dealt with corollary matters of curriculum change.

Illustrative of promising staff utilization studies, a Texas project (83) sought to test the hypothesis that the teaching of large groups (using television, radio, tape recorders, and over-viewers) and teacher-pupil planning of learning experiences for individual and small-group effort in unit-type activities are more economical and more educationally productive than secondary-school teaching after the traditional pattern. In Weber County, Utah (82, 83), a curriculum of the core type was proposed as a more economical utilization of staff than the traditional type. An attempt to develop an instructional program suited to a uniquely designed high-school plant in Syosset, New York (82, 83), evolved five patterns of staff organization: (a) alternating teaching, (b) co-teaching, (c) master-teaching, (d) panel teaching, and (e) team teaching.

Unfortunately most of these programs have not progressed far enough for conclusions to be reached regarding the value of the several innovations. Even more unfortunate is the fact that many of them are but demonstrations of practice, lacking any design for evaluation. It is regrettable

that more effort is not made (a) to explore possibilities of curriculum organization and their relation to appropriate patterns of staff organization for implementation and (b) to extract maximum information and understanding from a staff utilization study by evaluation of important independent-dependent-variable relationships.

Core Organization

Noall and Winget (86) reported on core organization in Utah. Schwartz (97) observed that high-school students who participated in a core program in junior high school achieved higher final marks in grades 10, 11, and 12 than those who did not so participate. Mennes (79) found that students in double-period classes combining English and history made greater progress than students in separate single-period classes. (Additional references on core programs were cited in the REVIEW issue devoted to "Adolescence.")

Class Size

The study of class size and its effect upon achievement continued a popular theme. Johnson, Lobb, and Patterson (62) compared achievements of the following: (a) 20 students taught by one teacher and 35 taught by one teacher; (b) 70 students taught by two teachers as a team and 70 taught by two teachers in two classes of equal size; (c) 70 students taught by two teachers as a team and 20 taught by one teacher; and (d) 70 taught by two certified teachers as a team and 70 taught by one certified and one noncertified teacher as a team. No significant academic variance between and/or within the experimental classes of varying size was found.

Cammarosano and Santopolo (25) found that a college class of 60, assuming comparable teaching, equaled the achievement of a class of 30. Nelson (85), measuring the achievement of college students in elementary economics, found that, under identical conditions, classes of 85-140 can be taught as effectively as classes of 16-20.

Macomber and Siegel (74) found that instruction given simultaneously to large groups in either television sections or large classes is accomplished at some sacrifice of students' favorability to the course, even though there is virtually no measurable decline of achievement. Schellenberg (96) found a consistent inverse relationship between group size and student satisfaction; that instructors are more inclined than students to show satisfaction with large groups; and some evidence of slightly higher academic achievement in small groups than in large groups.

Nachman and Opochnsky (81) sought to discover why class size has been found repeatedly to produce no significant effect on the amount

learned. Their study tested the hypothesis that two groups taught under different procedures may learn different amounts in class but that, when both engage in significant extra study, the difference in performance on the final examination becomes negligible. Although this experiment was not primarily concerned with the effects of small versus large classes, the data indicated that students in small classes learned significantly more in class than did the students in large classes. The hypothesis that no difference would be found between the classes when the students were given an opportunity to study for an examination was also confirmed.

Summary

This review of the literature in administrative structure and processes in curriculum development reveals that:

1. The principal is expected to assume a leadership role in improving and developing the curriculum. The importance of his working style (democratic and co-operative), his capacity to enhance the leadership function of the staff in instructional improvement, his ability to do curriculum research, his skill in problem definition and problem-solving, his skill in evaluation processes, and his general ability to understand and work with people were all emphasized.

2. A wide array of working processes and problem areas has been utilized in programs of inservice education of teachers. The results of such studies indicate that attempts to deal experimentally with an aspect of the educational program, if carried on with enthusiasm and persistence, will be regarded by the participants as valuable and will produce an effect greater than that produced by the usual program of activities. In general, however, studies of problems closely related to significant areas of the educational program and its educational and social processes seem to be more effective than those less related. This suggests that sufficient knowledge has been gained to permit development of a tentative theoretical structure of staff work on curriculum problems, which would enable the systematic accumulation of further knowledge.

3. There is a significant attempt to relate improvements in physical facilities to concepts of educational organization and program. This effort is evidenced in building design, arrangements within educational units, and variation in classroom design to match the intended function. It may even be a fact that ingenuity in building and classroom planning has outstripped ingenuity in educational planning.

4. Attempts are being made to dispose large numbers of children, staff, and facilities in more economical and efficient ways to deal with large numbers of students, with variation in ability, and with limitations of teacher competency. Under the stimulus of foundation effort and public criticism, more activity is being evidenced in this area than at any other

time during many years. No clear trend has yet appeared in the studies under way.

This review of studies of administrative structure and its processes and of their findings brings four important research problems into focus:

1. Staff and administrative structure which actually exists in a school program is more complex in nature and function than is implied in the common conception of a principal and teachers operating more or less independently. There is need, therefore, to study staff and administration structures as social systems which involve principals, supervisors, teachers, children, and parents, and which operate as units within a larger system. Study of the roles of a principal without relation to other roles in the same structure, therefore, will only lead to the finding that the principal must be all-wise, responsible for all things, and competent to deal with all problems.

2. Administrative structures appropriate for budgeting, pupil accounting, building maintenance, determination of lines of authority, and the like may not be appropriate for improving the curriculum; yet, there is little recognition of the implications of a difference in structure for a principal when he moves from his role in the administrative structure to his leadership role in curriculum improvement.

3. The relationship among three classes of variables tends not to be recognized in studies of structure and processes in curriculum development—the variables having to do with variations in the behavior of staff personnel and changes in administrative structure; the variables having to do with changes in values, abilities, and understandings of the instructional personnel, and changes in the curriculum structure; and the variables related to the educational behavior of children and youth.

It seems obvious that all three of these classes of variables need to be related. Changes in administrative structure ought to be related to changes in teacher behavior, which ought in turn to be related to changes in the behavior of the learner. Perhaps the best we can do at present is to observe the relationship among variables in one or two classes, that is, how changes in the working style of the principal are related to staff acceptance of his leadership.

4. Those doing research on administrative processes in relation to curriculum structures lack a methodology adequate for dealing with the complexities of this problem. Unfortunately, few studies reviewed here fully utilize present knowledge.

Bibliography

1. ABBOTT, ROBERT B. "Two Oakland Programs for Gifted Junior High School Pupils: Acceleration and Enrichment." *California Journal of Secondary Education* 33:159-63; March 1958.
2. ABRAMSON, DAVID A. "Effectiveness of Grouping for Students of High Ability." *Educational Research Bulletin* 38:169-82; October 1959.

3. ADAMS, GRACE L., and BOWIE, LUCILLE. "How We Learn: Implications for Supervision." *Education* 78:211-15; December 1957.
4. ALEXANDER, ROBERT E. "It's Time to Look at Tomorrow's Schools." *School Executive* 78:60-63; September 1958.
5. ALEXANDER, WILLIAM M. "Cooperation in In-Service Education: A Case Study." *Educational Leadership* 15:279-85; February 1958.
6. ANDERSON, JESSIE M. "The Gifted in Chula Vista." *Education* 80:158-60; November 1959.
7. APPEGATE, IRVAMAE V. *A Survey of Selected Inservice Practices in Minnesota Public Schools with Implications for the Organization of Inservice Education Activities*. Doctor's thesis. Minneapolis: University of Minnesota, 1957. 298 p. Abstract: *Dissertation Abstracts* 17:1955-56; No. 9, 1957.
8. ARNHEIM, ROY L. "The Principal as an Effective Leader of Teachers." *Bulletin of the National Association of Secondary-School Principals* 41:291-96; April 1957.
9. ARNOFF, MELVIN. "Prevailing Practices in Education for the Gifted." *Ohio Schools* 37:22-23; December 1959.
10. ASSOCIATION FOR SUPERVISION AND CURRICULUM DEVELOPMENT. *Leadership for Improving Instruction*. 1960 Yearbook. Washington, D. C.: the Association, a department of the National Education Association, 1960. 198 p.
11. ASSOCIATION FOR SUPERVISION AND CURRICULUM DEVELOPMENT. *Research for Curriculum Improvement*. 1957 Yearbook. Washington, D. C.: the Association, a department of the National Education Association, 1957. Chapter 9, p. 228-48.
12. AUSTIN, KENT CARNOCHAN. *The Ungraded Primary Unit in Public Elementary Schools of the United States*. Doctor's thesis. Boulder: University of Colorado, 1957. 191 p. Abstract: *Dissertation Abstracts* 19:73-74; No. 1, 1958.
13. AYARS, ALBERT L. *An Evaluation of Cooperatively-Planned Community Resources Workshops for Teachers*. Doctor's thesis. Pullman: State College of Washington, 1956. 209 p. Abstract: *Dissertation Abstracts* 17:812-13; No. 4, 1957.
14. BAGBY, CAROLYN, and STICKLE, RUTH. "Check List for Use in Planning the English Classroom in the Secondary School." *English Journal* 46:579-81; December 1957.
15. BALDAUF, ROBERT J. "Comparison of the Extent of Educational Growth of Mentally Advanced Pupils in the Cedar Rapids Experiment." *Journal of Educational Research* 52:181-83; January 1959.
16. BELKNAP, ROBERT HARLAN. *Planning a Functional Kindergarten*. Doctor's thesis. Stanford, Calif.: Stanford University, 1958. 137 p. Abstract: *Dissertation Abstracts* 19:278; No. 1, 1958.
17. BENDA, HAROLD W. *A Plan for the Improvement of the Pre-Service Course in Audio-Visual Education for the State Teachers Colleges of New Jersey*. Doctor's thesis. New York: New York University, 1956. 124 p. Abstract: *Dissertation Abstracts* 18:1727; No. 5, 1958.
18. BERGE, MARVIN L.; HARRIS, RUSSELL E.; and WALDEN, CHARLES B. "In-Service Education Programs of Local School Systems." *In-Service Education*. Fifty-Sixth Yearbook, Part I, National Society for the Study of Education. Chicago: University of Chicago Press, 1957. Chapter 9, p. 197-223.
19. BERNHARD, S. J. "Comprehensive School Can Serve the Superior Student." *High Points* 41:70-75; June 1959.
20. BETTELHEIM, BRUNO. "Segregation: New Style." *School Review* 66:251-72; September 1958.
21. BIENVENU, HAROLD J. "In-Service Education for an Economic Era." *Journal of Teacher Education* 9:237-42; September 1958.
22. BRANDT, RICHARD M., and PERKINS, HUGH V., JR. "Teachers Change as They Study Children." *Childhood Education* 34:218-20; January 1958.
23. DREMER, NEVILLE H. "First-Grade Achievement Under Different Plans of Grouping." *Elementary English* 35:324-26; May 1958.
24. BRUBAKER, CHARLES W., and PERKINS, LAWRENCE B. "Sketch Book: Space for Individual Learning." *School Executive* 78:43-58; February 1959.
25. CAMMAROSANO, JOSEPH R., and SANTOPOLO, FRANK A. "Teaching Efficiency and Class Size." *School and Society* 86:338-41; September 27, 1958.

26. CAMMAROTA, GLORIA. "Secondary School Principal and Curriculum Improvement." *Educational Administration and Supervision* 44:45-57; January 1958.
27. CAMP, M. B. *Some Factors Related to the Utilization of Audio-Visual Materials, with Suggestions for Teacher Preparation in This Area*. Doctor's thesis. University Park: Pennsylvania State University, 1957. 143 p. Abstract: *Dissertation Abstracts* 18:155; No. 1, 1958.
28. CAPRA, JAMES. "Individualizing Instruction." *American School Board Journal* 137:17-18, 56; December 1958.
29. CARMONY, EDWIN. "An Elementary Instructional Materials Center." *Educational Screen and Audio-Visual Guide* 37:514; October 1958.
30. CARTER, ELWYN. "School Building Planning for Music and Drama." *Music Educators Journal* 45:37-39; June 1959.
31. CLARK, LOIS M. "Supervision as Leadership in Curriculum Development." *Education* 78:216-20; December 1957.
32. CRUTCHER, E. BRYAN, and SMITH, MARIAN W. "The Grouping Dilemma." *Ohio Schools* 47:18-19; November 1959.
33. CULLEN, JAMES H. "College Seminars for High School Gifted." *School Executive* 78:70-71; November 1958.
34. CYPHER, IRENE F. "Materials Centers and School Libraries Don't Mix." *Library Journal* 81:544-47; February 15, 1956.
35. DAINES, DELVA. *Analysis of Fifty Instructional Problems of Elementary School Staffs in the State of Idaho and the Implications for In-Service Growth Programs*. Doctor's thesis. Pullman: State College of Washington, 1956. 189 p. Abstract: *Dissertation Abstracts* 17:101-102; No. 1, 1957.
36. DAVIDSON, EDITH M. "A-V Control System." *Educational Screen and Audio-Visual Guide* 35:402-403; November 1956.
37. DEBERNARDIS, AMO. "Instructional Materials Centers—Their Plan and Function." *American School and University*. School Plant Reference, Vol. 1. New York: American School Publishing Co., 1956. p. 93-104.
38. DUTTON, WILBUR H., and HOCKETT, JOHN A. *The Modern Elementary School; Curriculum and Methods*. New York: Rinehart and Co., 1959. 530 p.
39. EMLAW, RITA. "Organizing Schools for the Future." *Educational Leadership* 14:288-92; February 1957.
40. FINLEY, ROBERT MARSHALL. *A Study of a Self-Contained Group of Third, Fourth, and Fifth Grade Children; Glencoe, Illinois, 1953-54*. Doctor's thesis. Evanston, Ill.: Northwestern University, 1956. 427 p. Abstract: *Dissertation Abstracts* 16:2347; No. 12, 1956.
41. FLIEGLER, LOUIS A., and BISH, CHARLES E. "The Gifted and the Talented." *Review of Educational Research* 29:408-50; December 1959.
42. FOSTER, LUCILLE ESTELLE CASTER. *Perceived Competencies of School Supervisors*. Doctor's thesis. Stanford, Calif.: Stanford University, 1959. 161 p. Abstract: *Dissertation Abstracts* 20:568-69; No. 2, 1959.
43. GALLAGHER, CATHERINE. "What Are the Uses and Standards of Homogeneous Grouping?" *New York State Education* 44:538-39; May 1957.
44. GALLANT, HOWARD L. "Look at a Multiple Track Mathematics Program." *Bulletin of the National Association of Secondary-School Principals* 43:55-60; May 1959.
45. GILLINGHAM, LAWRENCE J. *An Analysis of Methods of Evaluation and Selection of Audio-Visual Materials for Use in the Houston Independent School District*. Doctor's thesis. Houston, Texas: University of Houston, 1958. 242 p. Abstract: *Dissertation Abstracts* 19:259-60; No. 1, 1958.
46. GOLDWORTH, MARY. "Effects of an Elementary School Fast-Learner Program on Children's Social Relationships." *Exceptional Children* 26:59-63; October 1959.
47. GOODLAD, JOHN I., and ANDERSON, ROBERT H. "Nongraded Elementary School." *NEA Journal* 47:642-43; December 1958.
48. GOODLAD, JOHN I., and OTHERS. "'Reading Levels' Replace Grades in the Non-Graded Plan." *Elementary School Journal* 57:253-56; February 1957.
49. GRANT, LESTER J. "Principal Studies His Leadership Role." *Bulletin of the National Association of Secondary-School Principals* 43:61-64; February 1959.
50. HAMILTON, ROBERT. "Classroom Use of A-V Materials Made Easy by Central Distribution." *Nation's Schools* 63:90-91; February 1959.

51. HAMILTON, WARREN W., and REHWOLDT, WALTER. "By Their Differences They Learn." *National Elementary Principal* 37:27-29; December 1957.
52. HARRISON, MELVIN W. "La Puente Challenges the Superior Student." *California Journal of Secondary Education* 34:68-71; February 1959.
53. HART, RICHARD H. "Effectiveness of an Approach to the Problem of Varying Abilities in Teaching Reading." *Journal of Educational Research* 52:228-31; February 1959.
54. HAY, MORRIS E. "Effective Learning Through Grouping in Junior High School." *California Journal of Secondary Education* 32:11-13; January 1957.
55. HEDGES, VERA LEE, and OTHERS. "Opportunities for Teacher Participation in Research." *Educational Leadership* 15:351-55; March 1958.
56. HENZIE, RUSSELL. "A Junior High Program." *Education* 80:151-53; November 1959.
57. HERMINGHAUS, EARL G. "What St. Louis Is Doing." *Education* 80:147-50; November 1959.
58. IRELAND, ROBERT S. "Student Centered High School." *School Executive* 79:72-74; October 1959.
59. JAMESON, MARSHALL C., and HICKS, WILLIAM VERNON. *Elementary School Curriculum: From Theory to Practice*. New York: American Book Co., 1960. 425 p.
60. JENSEN, GRANT W. "The Role of the Principal in Improving the Quality of Instruction—Through Curriculum Design." *Bulletin of the National Association of Secondary-School Principals* 41:272-74; April 1957.
61. JOHNSON, CLARENCE W., and SHIELDS, CLYDE. "What Are Ways of Grouping Students Homogeneously for Effective Instruction?" *Bulletin of the National Association of Secondary-School Principals* 43:126-30; April 1959.
62. JOHNSON, ROBERT H.; LOBB, DELBERT M.; and PATTERSON, GORDON. "Continued Study of Class Size, Team Teaching, and Scheduling in Eight High Schools in Jefferson County, Colorado." *Bulletin of the National Association of Secondary-School Principals* 43:99-103; January 1959.
63. KLUWE, MARY JEAN UPSON. *An Investigation of the Effects of an Integrated Kindergarten-Primary Program*. Doctor's thesis. Detroit: Wayne State University, 1957. 285 p. Abstract: *Dissertation Abstracts* 19:2028-29; No. 8, 1959.
64. KOCH, KENNETH M. "St. Paul Teachers Participate in Fact Finding." *Educational Leadership* 15:356-59; March 1958.
65. KOSELL, EDWARD J. "A-V Coordination in a Large Urban School." *Educational Screen and Audio-Visual Guide* 38:294-95; June 1959.
66. KREBS, ROBERT E. "Evaluation in an In-Service Education Program." *Educational Leadership* 15:286-90; February 1958.
67. KRUG, EDWARD A. *Curriculum Planning*. Revised edition. New York: Harper and Brothers, 1957. 336 p.
68. LAING, JAMES M. "Role of the Curriculum Co-ordinator." *Education* 78:87-89; October 1957.
69. LAUCHNER, AARON H., and HORNER, HOWARD F. "What Are Current Trends in Grouping Students for Effective Instruction?" *Bulletin of the National Association of Secondary-School Principals* 43:6-9; April 1959.
70. LAWSON, DOUGLAS E. "Analysis of Historic and Philosophic Considerations for Homogeneous Grouping." *Educational Administration and Supervision* 43:257-70; May 1957.
71. LE CRONIER, RUSSELL. "Compact Spaciousness: The Mt. Pleasant High School." *American School Board Journal* 137:29-32; July 1958.
72. LONSDALE, BERNARD J., and MARSHALL, LORENE E. "In-Service Education Programs in Selected California School Districts." *California Journal of Elementary Education* 25:30-51; August 1956.
73. MCINTOSH, MARGERY P. "The Gifted in La Mesa-Spring Valley Schools." *Education* 80:154-57; November 1959.
74. MACOMBER, FREEMAN G., and SIEGEL, LAURENCE. "Study in Large-Group Teaching Procedures." *Educational Record* 38:220-29; July 1957.
75. MCSWAIN, ELDRIDGE T. "Who Should Guide the Public Schools?" *Educational Leadership* 14:422-25; April 1957.

76. MANN, HORACE. "How Real Are Friendships of Gifted and Typical Children in a Program of Partial Segregation?" *Exceptional Children* 23:199-201, 206; February 1957.
77. MARTIN, WILLIAM B. *Effects of Ability Grouping on Junior High School Achievement*. Doctor's thesis. Nashville, Tenn.: George Peabody College for Teachers, 1958. 129 p. Abstract: *Dissertation Abstracts* 19: 2810; No. 11, 1959.
78. MARTINSON, RUTH A. "A Study of Public School Education Programs for the Gifted." *California Schools* 29:69-70; February 1958.
79. MENNES, ARTHUR H. "The Effectiveness of Multiple Period Curricular Practices in High School English and Social Studies." *Journal of Educational Research* 50:59-69; September 1956.
80. MORTON, ROBERT L. "Providing for Individual Differences by Grouping in Depth." *Bulletin of the National Association of Secondary-School Principals* 43:119-22; May 1959.
81. NACHMAN, MARVIN, and OPOCHINSKY, SEYMOUR. "The Effects of Different Teaching Methods: A Methodological Study." *Journal of Educational Psychology* 49:245-49; October 1958.
82. NATIONAL ASSOCIATION OF SECONDARY-SCHOOL PRINCIPALS, COMMISSION ON THE EXPERIMENTAL STUDY OF THE UTILIZATION OF THE STAFF IN THE SECONDARY SCHOOL. *Exploring Improved Teaching Patterns; Second Report on Staff Utilization Studies*. Bulletin No. 243. Washington, D. C.: the Association, a department of the National Education Association, January 1956. 354 p.
83. NATIONAL ASSOCIATION OF SECONDARY-SCHOOL PRINCIPALS, COMMISSION ON THE EXPERIMENTAL STUDY OF THE UTILIZATION OF THE STAFF IN THE SECONDARY SCHOOL. *New Horizons in Staff Utilization*. Bulletin No. 234. Washington, D. C.: the Association, a department of the National Education Association, January 1958. 262 p.
84. NELSON, ESTER. "In-Service Education Programs in California Counties." *California Journal of Elementary Education* 25:12-29; August 1956.
85. NELSON, WALLACE B. "Experiment with Class Size in the Teaching of Elementary Economics." *Educational Record* 40:330-41; October 1959.
86. NOALL, MATTHEW F., and WINGET, LERUE. "The Core Curriculum Project." *Bulletin of the National Association of Secondary-School Principals* 43: 196-203; January 1959.
87. OTTO, HENRY J. "Grouping Pupils for Maximum Achievement." *School Review* 67:387-95; Winter 1959.
88. OVARD, GLEN FOWLER. *Planning Social Studies Facilities for Secondary Schools*. Doctor's thesis. Stanford, Calif.: Stanford University, 1959. 259 p.
89. PARKER, JOHN CECIL. "Guidelines for In-Service Education." *In-Service Education for Teachers, Supervisors, and Administrators*. Fifty-Sixth Yearbook, Part I, National Society for the Study of Education. Chicago: University of Chicago Press, 1957. Chapter 5, p. 103-28.
90. PREGLER, HEDWIG O. "The Colfax Plan." *Education* 80:139-42; November 1959.
91. RAASCH, MILDRED. "Milwaukee's Pilot Program." *Education* 80:143-46; November 1959.
92. REHAGE, KENNETH J., and DENEMARK, GEORGE W. "Area, State, Regional, and National In-Service Education Programs." *In-Service Education*. Fifty-Sixth Yearbook, Part I, National Society for the Study of Education. Chicago: University of Chicago Press, 1957. Chapter 10, p. 224-63.
93. REHWOLDT, WALTER, and HAMILTON, WARREN W. "Why Group by Grade Level?" *Grade Teacher* 76:18-19, 75; January 1959.
94. RICHARDSON, EVAN C. "In-Service Science Program." *National Elementary Principal* 37:27-29; April 1958.
95. SATTLEY, HELEN R. "School Library: Some Obstacles and Objections to the School Library as a Materials Center." *Bulletin of the American Library Association* 50:373-76; June 1956.
96. SCHELLENBERG, JAMES A. "Group Size as a Factor in Success of Academic Discussion Groups." *Journal of Educational Sociology* 33:73-79; October 1959.
97. SCHWARTZ, BERNARD. "An Investigation of the Effects of a Seventh and Eighth Grade Core Program." *Journal of Educational Research* 53:149-52; December 1959.

98. SHAPLEIGH, DOROTHY L. "Program-Planning for Differentiated Pupil Personnel." *Bulletin of the National Association of Secondary-School Principals* 42:133-36; February 1958.
99. SIMS, WARD L. "The Development and Evaluation of an In-Service Education Program in Elementary School Science." *Science Education* 42:391-98; December 1958.
100. SMITH, R. TYLER. "An Experiment in Grouping." *Ohio Schools* 36:19; December 1958.
101. SPALDING, HOWARD G. "Role of the Principal in Curriculum Work." *Teachers College Record* 58:153-58; December 1956.
102. STODDARD, GEORGE D. "The Dual Progress Plan." *School and Society* 86: 351-52; October 11, 1958.
103. SUGG, WOODROW B. *A Study of the Relationship Between Program Development and the Working Pattern of School Principals*. Doctor's thesis. Gainesville: University of Florida, 1955. 183 p. Abstract: *Dissertation Abstracts* 15:1536; No. 9, 1955.
104. TAYLOR, BOB LESLIE. "Factors Influencing In-Service Teacher Education Programs." *Journal of Educational Research* 52:336-38; May 1959.
105. TAYLOR, BOB LESLIE. *The Status of In-Service Teacher Education in the Public Senior High Schools of the State of Indiana*. Doctor's thesis. Bloomington: Indiana University, 1957. 301 p. Abstract: *Dissertation Abstracts* 18:515-16; No. 2, 1958.
106. THELEN, HERBERT A. "Classroom Grouping of Students." *School Review* 67: 60-78; Spring 1959.
107. WAGNER, GUY W. "What Schools Are Doing in Grouping Children for Reading." *Education* 78:309-12; January 1958.
108. WEISS, SEYMOUR. "Education for International Understanding: Rockland County Teachers Association." *New York State Education* 45:638-40; June 1958.
109. WERNICK, LEO J. "Experimental Program for Young Adolescents." *Educational Leadership* 14:488-94; May 1957.
110. WILES, KIMBAL, and GROBMAN, HULDA G. "Role of the Principal in Curriculum Development." *Educational Administration and Supervision* 44:10-14; January 1958.
111. WILHELMS, FRED T. "Grouping Within the Elementary Classroom." *NEA Journal* 48: 19-21; September 1959.
112. YERG, LINDLEY N. "What Is Special Assistance Grouping?" *Bulletin of the National Association of Secondary-School Principals* 43:204-205; September 1959.

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